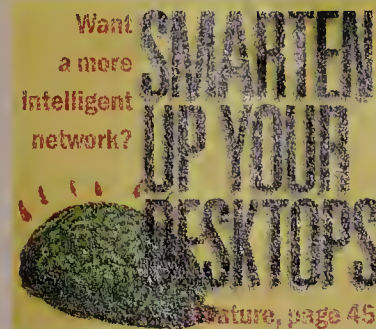


# NetworkWorld

THE WEEKLY OF ENTERPRISE NETWORK COMPUTING



Bay Networks' CEO David House is using training to revitalize the company.

## I've been HOUSE-TRAINED

Sitting in as David House tries to turn his new company around.

By John Gallant

Billerica, Mass.

It's 10:21 on a beautiful, late spring morning in this quiet suburban town, home to Bay Networks, Inc.'s East Coast operations, and I've already violated one of David House's chief rules of successful meetings — I'm late.

No good reason, really. I'm simply late, and my plan to observe unobtrusively as House, Bay's new CEO, educates a roomful of top managers in the basics of running efficient meetings is shot to hell. The training session — the last of four in which managers have participated — is nearly halfway over and an entrance now would be anything but unobtrusive.

See House-trained, page 55

## Cisco to pounce on ATM nets with 'Cougar' switch

By Jim Duffy

San Jose, Calif.

Despite the doomsday forecasts for ATM now that Gigabit Ethernet products are rolling out, Cisco Systems, Inc. is forging ahead on its next-generation ATM campus switch.

The new LightStream switch — code-named Cougar — quadruples the bandwidth of LightStream 1010, the company's current ATM campus switch. Cougar also will boast an

eightfold increase in ATM port density over the LightStream 1010 and will compete with current and next-generation offerings from Bay Networks, Inc. and FORE Systems, Inc.

The 20G bit/sec nonblocking Cougar switch is expected to ship by mid-1998, a few months after Cisco plans to ship its Gigabit Ethernet switches.

Cisco will position Cougar as a higher speed, higher density

See Cougar, page 68

### LIGHTSTREAM COUGAR SWITCH

Highlights include:

- ▶ 20G bit/sec nonblocking architecture
- ▶ OC-48 capable
- ▶ 13-slot chassis
- ▶ Redundant switching
- ▶ Redundant CPU
- ▶ Native ATM and Tag Switching
- ▶ Available mid-1998

## A Web lesson learned

By John Cox

Washington, D.C.

The U.S. Department of Justice has confessed. In designing and running its Web site, it made at least a dozen mistakes that left the department open to an em-

barrassingly public hacker attack nearly one year ago.

The organization now says the break-in was a valuable lesson. And this week an educational outfit called the Intranet

See Justice, page 68

### WEB SECURITY DON'TS:

- Let outsiders set your Internet priorities.
- Believe all systems integrators that claim to be security experts.
- Assume today's security will be effective tomorrow.
- Not have a break-in plan.
- Distribute Web site authority.
- Encourage heterogenous telecom gear use.
- Misconfigure firewalls; don't assume firewalls offer total security.
- Believe that your Web site, if attacked, can be shut off quickly.
- Keep logs and incident data on the Web server.
- Leave administrative tools on the server.
- Send unprotected data among servers.
- Participate in nets with security laggards.

SOURCE: INTRANET INSTITUTE, BETHESDA, MD.

## IBM adds zing to Token Ring

100M and 128M bit/sec adapters, hubs and switches on tap.

By Marc Songini

IBM is trying to rekindle its romance with Token Ring users before the relationship hits divorce court.

Next month, the company is expected to announce a suite of 100M and 128M bit/sec Token Ring PC adapters,

See Token Ring, page 69

NetworkWorld Fusion

Get more online:

- An overview of the Fast Token Ring initiative
- A look at how Cisco, Bay and Madge will try to bring Fast Ethernet and ATM speeds to token ring

www.networkworld.com

Anura Gurugé on token-ring speed. Page 43.

## Novell preps software for year 2000

By Christine Burns

The year 2000 is fast approaching, but Novell, Inc. says customers have no need to panic.

Within the next two months, the company will formally announce plans to ensure that its network products work, even after the final second ticks off in 1999.

Novell is testing all of its products for year 2000 compliance and plans to issue any necessary software patches by the end of 1998 for NetWare 4.X, IntranetWare, GroupWise, ManageWise and others. A final decision

See Novell, page 67

More than a mainframe problem

Client/server apps are vulnerable to year 2000 related problems, says specialist Karl Felker in interview, page 41.



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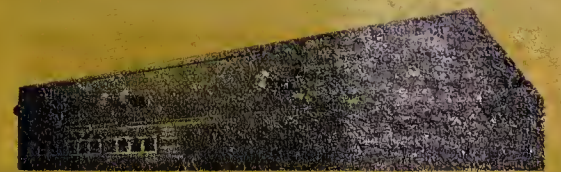
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<b>4 NETPORTEXPRESS™ PRO/100 PRINT SERVERS</b>	10/100Mbps connectivity for flexible transition to Fast Ethernet printing.
<b>5 ETHEREXPRESS™ PRO/100 ADAPTERS</b>	The award-winning 10/100 adapters that provide fastest total system performance for networked PCs.
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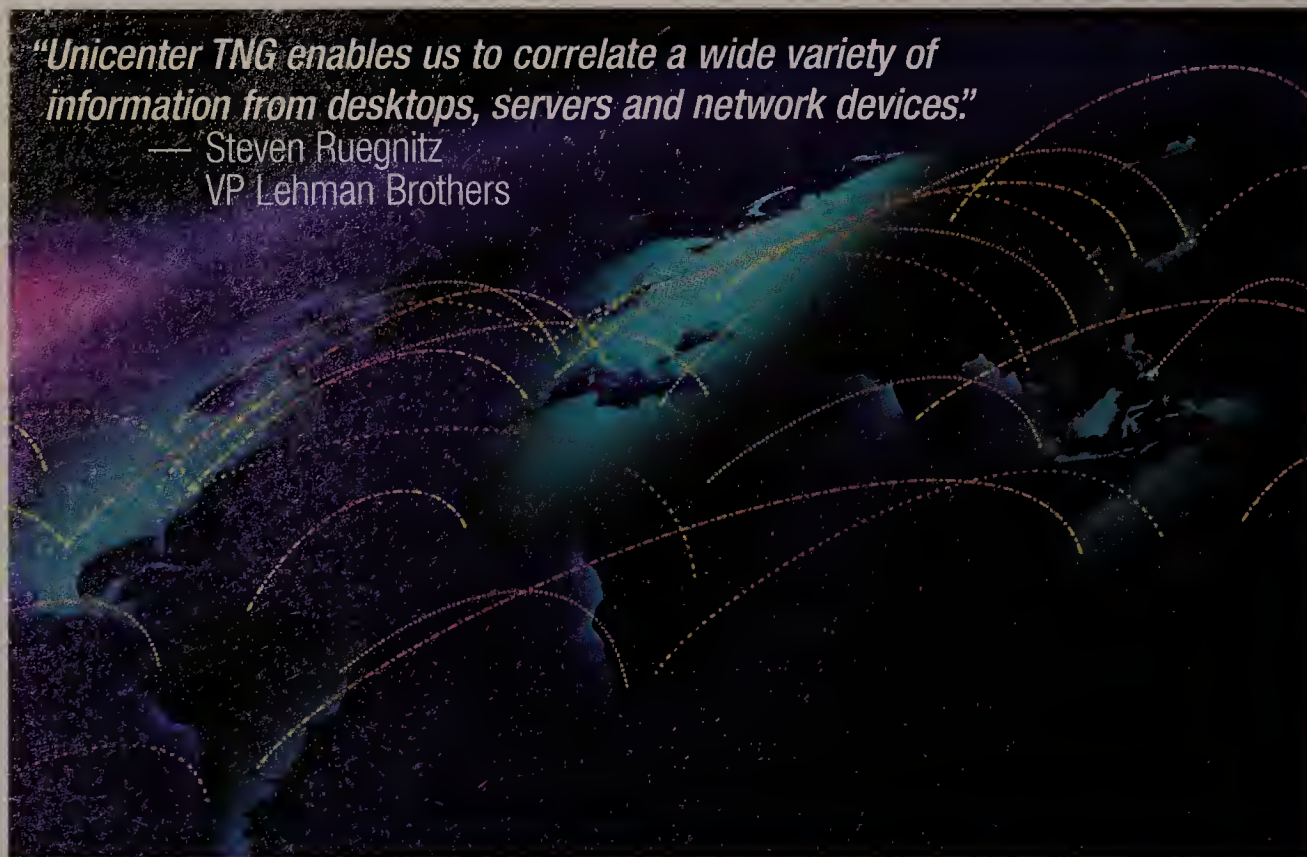
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## DIRECTORY CLEANUP

Compaq's Larry Ketchersid expects a big payoff from consolidating LAN and e-mail directories. Page 17.

## THIN-CLIENT CHOICE

IBM offers new Windows PC alternatives with two more Network Stations. Page 10.

## TALKIN' IP TELEPHONY

Tom Eyslin is leaving his post atop AT&T WorldNet to start an IP telephony firm. Page 8.

## FIND IT ON FUSION

To quickly get to any online info referenced in *Network World*, enter its DocFinder number in the input box on the home page.

9999

## NetworkWorld

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## This Week

### Only on Fusion

**Internet.** 'Net Buzz left the hive last week for a trip to Summer Internet World 97 in Chicago. Get all the stinging dispatches, including an exclusive interview with a fallen super hero and our man's rationale for refusing a massage on the show floor. **DocFinder: 3122**

**Databases.** Last week Informix hired a new CEO. **DocFinder: 3123**

**The industry.** While Microsoft tried to dampen Wall Street enthusiasm about its future, Netscape reported a quarterly loss. Get their latest stock prices and read the financials. **DocFinder: 3132**

### From the front page

**Security.** Read our story about how the Department of Justice is trying to learn from a hacker takeover of its Web site. Then come online for tips and articles on keeping hackers off your servers. **DocFinder: 3131**

**Year 2000.** Read our report, download our interview with a year 2000 expert, and follow links to enough year 2000 info to keep you anxious for months. **DocFinder: 3115**

### Letters, we get letters

This week, readers discuss everything from privacy to the importance of a good cup of coffee. **DocFinder: 3111**

### HOW TO GET ONTO NETWORK WORLD FUSION

At the welcome screen, click on First Visit and follow the instructions. Subscribers, keep your NWF number — highlighted on the front cover's mailing label — handy during registration. Nonsubscribers must fill out an online registration form.

### How to contact us

**WRITE:** Network World, 161 Worcester Road, Framingham, MA 01701; **CALL:** (508) 875-6400; **FAX:** (508) 820-3467; **E-MAIL:** nwnews@nwfusion.com; **CIRCULATION:** (508) 820-7444; nwcirc@nwfusion.com; **STAFF:** See the masthead on page 67 for more contact information.

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SPECIAL  
FOCUS

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For how many consecutive quarters has Cisco reported earnings and revenue growth? (A) 15 (B) 23 (C) 29



www.nwfusion.com

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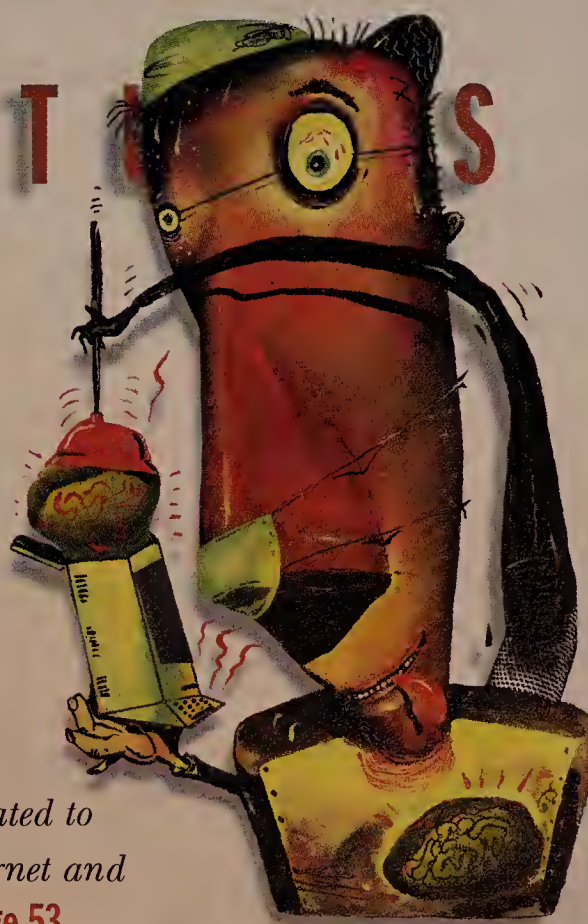
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RICK SEALOCK



## News briefs, July 28, 1997

**A taste of Ambrosia**

San Francisco-based Open Horizons, Inc. this week is planning the beta release of Ambrosia Version 2, a Java-based event management middleware application based on publish/subscribe messaging to integrate the transfer of business-event information.

The new version of Ambrosia, aimed at intranet and electronic commerce applications, will be based on the most recent Java specification, Java Development Kit 1.1, and will include its latest features, such as digital signing.

© Open Horizons: (415) 869-2200

**Informix gets new top dog**

Informix Corp. last week appointed Robert Finocchio president and CEO, hoping he will return the database vendor to profitability.

Finocchio, who most recently was president of 3Com Corp., also will join Informix's board of directors.

The Informix board will continue to be led by the current chairman, Phillip White, whom Finocchio is replacing as president and CEO, company executives said.

Informix, which lost \$140 million in the first quarter of this year, is expected to release second-quarter results this week. Last month, Informix Software, Inc., the company's operating unit, said it would reduce its worldwide staff of 4,400 by 10%.

**Lotus cranks out Web server**

Lotus Development Corp. last week announced shipment dates for its Lotus Go Web Server 4.6 and Lotus Go Web Server Pro 4.6. These new offerings are Lotus-branded upgrades of parent company IBM's Internet Connection Secure Server.

The servers are aimed at customers that want to establish a Web presence but do not require the interactive capabilities of Domino, Lotus' top-of-the-line Web server.

Go Web Server and Go Web Server Pro will be available from Lotus' Website (www.lotus.com) July 31 and will ship physically Aug. 15 and Aug. 27, respectively. Go Web Server costs \$495; Pro costs \$795.

**Explorer expected soon**

A Microsoft Corp. official last week outlined the company's Internet Explorer 4.0 rollout schedule. Windows 95 and NT Workstation editions will be available—free over the World Wide Web—before the end of September, said Yusef Mehdi, director of product marketing for Internet Explorer.

Windows 3.11 and Macintosh versions will be available 30 days after the initial Internet Explorer release, and the Unix edition will go into beta testing by year-end.

The final Unix version will ship in the first quarter of 1998, around the same time Windows 98 is due.

**AOL: We were just kidding**

America Online, Inc. (AOL) last week reported that it has renounced a controversial plan to provide the company's advertisers with telephone numbers for AOL's more than eight million subscribers.

In an open letter to subscribers posted on AOL's welcome screen, Chairman and CEO Steve Case explained why AOL was going to make the move and why the company backtracked.

Case said the company was going to give some of its advertisers the phone numbers in order to let them telemarket to AOL subscribers for special product deals planned for the third quarter. AOL is not going to rent member phone numbers to telemarketers, he emphasized, nor will it sell the e-mail addresses of its subscribers.

Nevertheless, Case conceded, AOL's plans, noted in the July 1 changes to the terms of service it posted for its subscribers, generated a lot of attention and criticism.



Finocchio

# Slow going at Summer Internet World 97

Microsoft and Netscape pass on show, but Internet service providers are active.



By Chris Nerney  
Chicago

It was like the Chicago Bulls without Michael Jordan or the city's skyline without the Sears Tower.

Last week's Summer Internet World 97 tried hard, but the absence of arch rivals Microsoft Corp. and Netscape Communications Corp. from the exhibit floor left a noticeable void on the trade show floor.

Of course, those two superstars of the Internet industry hardly were the only ones to skip the first Internet World showcase held in Chicago. The attendance—estimated around 25,000—was about half that of Internet World shows regularly held in New York and Los Angeles.

Still, there were plenty of other large vendors and hungry start-ups trying to grab headlines with their latest product announcements and strategies, including several Internet service providers.

**ISPs get busy**

For example, PSINet, Inc. announced its plans to beef up its network bandwidth by teaming with IXC Communications, Inc. PSINet will get exclusive use of 10,000 OC-48 fiber-optic miles throughout the country.

IXC is an Austin, Texas-based telecommunications wholesale provider that sells network capacity to competitive access providers offering local and long-distance services.

Not only will PSINet get the benefit of virtually owning its own fiber, but its distribution channel is expanding. IXC and its customers will be able to resell PSINet's services to their customers.

"This is a long time coming," said Dan Taylor, senior analyst at Aberdeen Group, Inc., a Boston-based consulting firm.

Existing PSINet customers will benefit from the increased size of the network, and PSINet will benefit from a new sales channel, Taylor said.

IXC also is making a \$240 million investment in the Herndon, Va.-based ISP. There is a safety net in the contract for IXC that states if IXC's 20% stake is worth less than \$240 million in one year, PSINet is required to make up the difference in cash

or additional stock.

Other ISP news included EarthLink Networks, Inc., which revealed its plan to offer Internet access service over cable television networks.

Next month, the Pasadena, Calif.-based ISP is expected to announce its latest twist on access services along with Charter Communications, a cable television service provider.

EarthLink has been testing IP over cable using cable modems from General Instrument Corp. and Com21, said Bob Grandino, senior manager of business development and implementation at EarthLink.

Although all of EarthLink's 330,000 users will not have access to the service, EarthLink said its plans are to expand its pending IP-over-cable services nationally. The service will initially be available in Pasadena and Riverside, Calif., for about \$40 per month for unlimited access.

EarthLink also announced that Dan Farmer, one of the creators of SATAN, the Unix-based network security system, is now the administrator of network security at the ISP.

Separately, Digex, Inc. announced its Live Event Stadium streaming service, which will let Digex customers send video broadcasts over the 'Net on a per-event basis.

Users that want to experiment or send only one or two broadcasts a year are not forced into buying a monthly service, but will pay \$30 to \$40 per-stream, per-day said Jim Stald, a vice president at Digex.

The service is slated for avail-

ability in August.

**Oracle in action**

Other vendors also made announcements at Summer Internet World 97.

Oracle Corp., announced its Proxy Server 1.0, designed to filter and cache Web content locally and reduce network traffic.

The product will run on NT and Solaris platforms and is slated to be available in 30 days.

Oracle also announced a partnership with collaborative filtering software vendor Firefly Network, Inc. to create a personalization cartridge for Oracle's Web Application Server.

The database company also announced that ICVerify, Inc., which sells software for merchants for credit card authorization over the Internet, has created software that runs on Oracle's Web Application Server, a specialized back-end Web server for building distributed applications on the Web.

Kate Tate, ICVerify's director of Internet business development, said the company's software is supported by more than 100 card-processing networks that handle credit card transactions for the banks.

Verity, Inc. unveiled a Windows NT version of its IntelliServ Web-based knowledge management tool. IntelliServ is an application that filters, indexes, summarizes and monitors data on corporate networks.

Senior Writer Denise Pappalardo contributed to this story.

## Novell's Schmidt: Free the RBOCs

During his keynote speech at Summer Internet World 97, Novell, Inc. Chairman and CEO Eric Schmidt said the Internet desperately needs more bandwidth, particularly in the local loop.

And one way to get more bandwidth might be by deregulating the regional Bell operating companies, he said.

"I met with three or four RBOCs, and they took me on a tour of their data centers," Schmidt said. He said he was left with the impression that data calls over the public-switched network are causing massive congestion.

"We tightly regulate the Bells while we're also heaping these new services on them," Schmidt said. "The RBOCs should be freed to compete."



Novell's Schmidt

—Ellen Messmer





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# AT&T flounders for way out of its funk

Recent corporate disasters poke holes in carriers' once-impenetrable armor.

By David Rohde

Suppose you're the one who gets the call from AT&T's executive search committee to become the company's new president and chief operating officer — and heir to Robert Allen as CEO.

After negotiating the same lush contingency agreement as that of deposed President John Walter — in case you, too, were dumped nine months later — what should you do on day one?

With remarkable unanimity, analysts and users last week agreed on five steps you should take:

- Start talking more about fast modems and less about phone calls.
- Drop AT&T's go-it-alone attitude and find partners among competitive access providers.
- Respond to corporate requests for proposal and installation orders as quickly as possible.
- Articulate a strategy to enter the local telecom market.
- Gently whisper in Allen's ear that it is time for him to go.

A recent series of corporate disasters at AT&T — topped by its embarrassing retreat from merger talks with a regional Bell operating company and Walter's resignation after nine months — has the telecom giant reeling.

The result among users is expected to be a hesitance before signing new contracts lasting more than a year or two with AT&T — a big turnaround from the days when AT&T locked in customers for five years at a time.

"Nobody really thinks for a minute that because Bob Allen is sucking wind AT&T's network is going to go on the blink," said Bryan Van Dussen, director of telecommunications research for The Yankee Group in Boston. "But these high-profile screwups at AT&T reach into every CEO's boardroom."

Corporate chieftains who previously would never fault their network IS management for hiring AT&T are now going to ask more questions "given the myopia that has struck [AT&T]," Van Dussen said. And in a reversal of the classic pattern, AT&T's competitors "will very aggressively try to plant seeds of doubt" about using AT&T, he added.

Users' heightened attention to AT&T is likely to fall most acutely in related areas of re-

sponse times to network design requests and installation intervals for new network ports. Both areas have been sticking points within AT&T.

For example, Owens Corning, Inc. has decided to end its long-standing Tariff 12 contract with AT&T at the end of this year, according to Bill McGarry, the company's director of global

do not generate much revenue. And a new problem flared up last week: Tom Evslin, AT&T vice president and head of the WorldNet division, resigned to head up a new company that will act as a go-between for ISPs wishing to offer ubiquitous IP telephony service (see story below). AT&T said it might take a stake in the company and is hoping to defray

initial expenses.

In fact, analysts and competitors noted that AT&T continues to have difficulty establishing meaningful partnerships with other companies. Case in point: LAN management. Officials with the company's Managed Network Solutions unit promised in January to find vendors — product manufacturers or independent integrators — to partner with to extend AT&T's managed WAN offerings. So far it has been unable to do so.

"It's a matter of a lack of focus on their part," said Gary Forsee,

president of Sprint Corp.'s long-distance division, following Sprint's announcement last week that it would purchase Houston-based network integrator Paranet, Inc. (see story, page 29).

"Everyone at a company loses some momentum when there are a lot of changes at the top," Evslin said in an interview with *Network World* last week.

The same applies to AT&T's halting strategy to enter the local telecommunications market.

AT&T continues to have difficulty. *See ATT, page 10*

## Falling down

The past two years at AT&T have been marked by regulatory tussles, fleeing executives and sagging financial performance.

**Sept. 20, 1995**  
CEO Robert Allen announces three-way split of AT&T.

**Jan. 2, 1996**  
Allen announces massive layoff of 40,000 workers.

**Feb. 8, 1996**  
President Clinton signs Telecommunications Act of 1996.

**August 1996**  
Alex Mandl resigns as president and COO to join wireless bypass firm.

**Oct. 22, 1996**  
John Walter is named president and COO.

**December 1996**  
Joe Nacchio resigns as executive VP of consumer markets following renewed loss of market share.

**March 4, 1997**  
AT&T announces earnings will dive nearly 30% this year.

**July 16, 1997**  
Walter quits following board's decision to deny promotion to CEO.

**July 22, 1997**  
Tom Evslin departs as head of AT&T's Internet business.

sourcing information systems.

A big reason is that upstart carrier LCI International, Inc. agreed to install Owens Corning's frame relay network with a commitment to install each of the 65 sites within 40 to 45 days after the company places the order. At the same time, LCI said it would provide long-distance and 800 service at an effective rate of 6 cents per minute or less.

When Owens Corning asked for a frame relay bid from AT&T along with a reduction in long-distance rates, "the deal was not competitive, and we didn't seem to have their attention to fix it," McGarry said. "They really didn't think we would leave them, and they didn't seem to care if we did."

Next, AT&T needs to identify itself far more directly with emerging broadband options for residential and commercial customers. "There's a disconnect between the AT&T brand name and the broadband world," Van Dussen said. "For example, why isn't AT&T out there thumping the table to get fast modems and xDSL technology out to the masses?"

AT&T's WorldNet became a leading Internet service provider via the strength of the AT&T brand name, Van Dussen pointed out, but most of their customers are dial-up users that

## IP Telephony

# Public nets are dead: Long live public nets

By Denise Pappalardo

Break out the respirator: The telephone network as we know it is dying.

At least that is the opinion of Tom Evslin, who last week said he is leaving his post as vice president and head of AT&T's World-

Net division to start his own IP telephony business.

Network managers who hold onto their belief that today's telecommunications network is going to be the same in 10 years, may find themselves in a situation like Novell, Inc. has with IPX, Evslin said. "IPX was a fine protocol, but Novell held onto it for too long and they almost lost the company," he said.

## Pollyanna thinking

Analysts said IP telephony has promise, but they do not believe demand for it is going to be such a driving force that it will disintegrate today's public switched telephone net.

"For anyone to say the switched telephone network is going to be dead shows a great deal of ignorance," said Dan Taylor, senior consultant at Aberdeen Group, Inc., a Boston-based consulting firm. "And to say that everything will run over a packet network is so Pollyanna and idealistic." IP telephony will have an impact, but it will not replace the networks we use today, Taylor said.

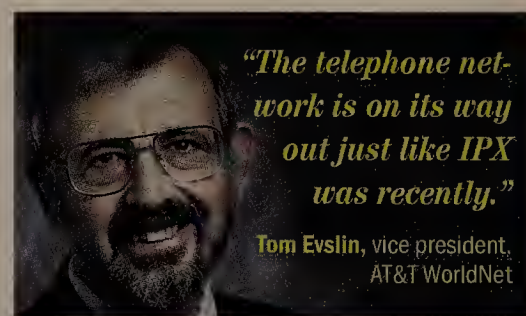
Evslin said his company will make a positive impact on the quality of IP voice, given that all of ITXC's traffic will run over a private Internet rather than the public one.

Evslin expects ITXC to have carriers up and running on its network by the start of next year.

ITXC's intranet will be constructed using leased private lines from companies such as AT&T, MCI Communications Corp. and Sprint Corp. ITXC will deploy VocalTec Telephony Gateway Servers throughout the network.

The servers will be used to send packetized voice calls from one ISP's network to the public telephone network in Paris, for instance. An ITXC hub in Paris, where a Telephone Gateway Server is deployed, will translate the IP voice packets to analog so the traffic can travel over the public network, Evslin said.

In five years, Evslin expects that about 50% of worldwide telephony traffic will travel over IP networks, he said last week during his keynote address at Summer Internet World 97 in Chicago. ■



Net division to start his own IP telephony business.

The new company, ITXC (Internet Telephony Exchange Carrier) Corp., will provide Internet service providers and traditional carriers with wholesale access to IP telephony services.

ITXC is backed by IP telephony pioneer VocalTec Communications, Ltd. and, strangely enough, by AT&T. Financial details were sketchy.

The world is moving toward a single protocol and that is IP,



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# IBM extends network computer line

By John Cox  
Chicago

IBM last week unwrapped two network computers in an effort to offer a wider range of Windows PC alternatives.

The new models, unveiled at Summer Internet World 97 here, are designed for users that are moving toward Web-based and especially Java applications. Both models also give users

## AT&T

Continued from page 8

culty breaking into the local market on its own and is continuing to blame RBOCs for the problems (see story below).

But in all of these areas, a special problem AT&T is going to face is recruitment of talented people.

"If I were a network [professional] with CNE or CCIE certification, and I get two to five recruitment calls a week, and I have my choice of AT&T, MCI, Sprint and whole lot of other integrators, AT&T is going to be far down the list," said a senior official from a leading network professional services firm who asked not to be identified. "Most people want to go with a winner, and AT&T does not look like a winner."

AT&T does have a number of advantages during the intense market struggles ahead. For example, despite its woes, AT&T's frame relay market share could easily grow in 1997, according to Rosemary Cochran, an analyst with Vertical Systems Group, a market research firm in Dedham, Mass.

AT&T still holds a disproportionate share of the private line network, while users ordinarily tend to stay with the same supplier. "And [AT&T] has the types of accounts that have more potential sites and larger networks," Cochran said.

"It would be better if none of this [corporate upheaval] were going on," said Joe Lueckenhoff, AT&T's product management vice president for data network services. "But really, my problem is servicing demand. We're trying to keep up with demand." AT&T's year-over-year frame relay growth exploded to 170% in the second quarter, Lueckenhoff said.

Senior Writer Denise Pappalardo contributed to this story.

access to mainframe applications as well as Unix and Windows server applications.

The IBM Network Station Series 300 has software to access these server applications, as well as a version of the Netscape Communications Corp. Navio network computer (NC) browser.

With this browser, users can run relatively simple or small Java applets locally.

The PowerPC-based computer costs \$799 and is available now.

The Series 1000 is designed as IBM's Java NC.

Along with the Navio browser, IBM will install a separate Java Virtual Machine (JVM), which can be thought of as the program that actually runs Java applications.

The JVM will be based on the latest version of the Java Development Kit.

The Series 1000 also will have a special program, called a compiler, that makes Java applications run faster. Finally, IBM plans to outfit the computer with a more powerful processor than the Series 300.

Pricing will be announced when the PowerPC-based machine is released by year-end.

The new NCs join IBM's existing Network Station Series 100, which has been shipping since last March.

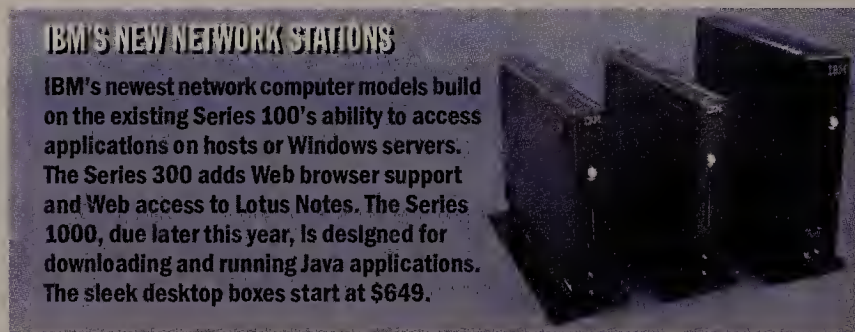
This device is aimed at giving end users access to host and Windows applications on a server. It also has a simple Web browser for HTML applications. It costs \$649.

All three machines plug into token-ring or Ethernet nets and comply with the Network Computer Reference Profile, a specification jointly created by IBM and several partners, including Oracle Corp. and Netscape.

"There is not going to be a single type of desktop client, but a mixture," said Phil Hester, vice president of development for IBM's Network Computing Division.

He said the Internet is creating a new class of users who need to access remote data, make decisions based on that data, and execute transactions based on those decisions.

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## Bell Atlantic and NYNEX agree to FCC terms

By David Rohde  
Washington, D.C.

A court ruling that appeared to leave broad-based telecom reform dangling on the ropes has been partially offset by a side agreement between regulators and two regional Bell operating companies.

Bell Atlantic Corp. and NYNEX Corp., seeking the Federal Communications Commission's approval of their pact, agreed on July 19 to largely abide by the FCC's controversial rules for pricing resale services and offering piece-parts of their nets to potential competitors.

Bell Atlantic and NYNEX also, for the first time, agreed to set performance standards for their electronic interfaces with competitors, designed to facili-

tate movement of customers between local carriers with no service interruption.

The agreement softens the initial blow of a ruling the previous day by a federal appeals court in St. Louis, which threw out the FCC's authority to impose its interconnection rules nationally. The court ruled that under the Telecommunications Act of 1996, individual states have the right to set prices for local network interconnection.

Many potential local competitors, especially AT&T, have said they cannot enter the local exchange market unless RBOCs follow FCC pricing guidelines. The federal appeals court did not say states and RBOCs could not use the FCC rules, only that the FCC has no authority to man-

## 'Net domain name squabble takes unexpected route

By Todd Wallack  
Alexandria, Va.

A federal judge last week ordered a man to temporarily stop rerouting end users trying to reach the Internet Network Information Center (InterNIC) Website.

Eugene Kashpureff, who wants to compete with the InterNIC domain name registry, exploited a flaw in the Domain Name System (DNS) to redirect users to his own site. Many users trying to reach www.internic.net over the past few weeks instead found themselves staring at www.alternic.net, where Kashpureff peddles his own Internet addresses.

"We [were] protesting the recent InterNIC claim to ownership of .com, .org and .net, which they were supposed to be running in the public trust," Kashpureff said on his Web site. In an interview, Kashpureff said he thought the hack was legal.

But Network Solutions, Inc. (NSI), which runs InterNIC operations and claims it owns the .com name and database, went to court to stop the detour. NSI officials persuaded a judge here to grant a 10-day temporary restraining order and are exploring more permanent legal remedies. Sources said the FBI also is looking into the matter.

"Misdirecting people is unethical as hell, and it may be a civil issue," said Karl Denninger,

who worked with Kashpureff to develop an alternative Internet domain system until they had a falling out a few months ago. He also runs MCSNet, a Chicago-based Internet service provider.

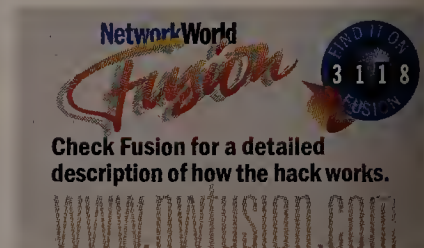
"If it was done to us, we'd pursue it on both civil and criminal levels, but I have no idea if we'd get anywhere," Denninger said.

### How did he do it?

Kashpureff declined to say how he performed the hack.

"If it got around, the DNS would be broken," he said. "I could do things with this that would blow the world's mind."

But Denninger said Kashpureff simply took advantage of a flaw in older versions of DNS software.



Specifically, the hack occurred whenever someone looked up www.alternic.net or another address in which it was necessary to query one of Kashpureff's name servers for the IP number.

Along with the correct information, Kashpureff programmed his DNS servers to send along phony "additional records" linking www.internic.net to one of his own IP numbers.

Moreover, he set the expiration date for 60 days.

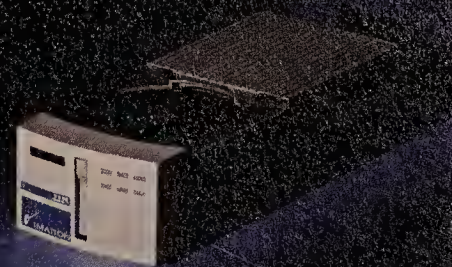
"Until that time elapses, once you get polluted, you will think that the IP number for www.internic.net is something other than what it really is," Denninger said. "Your name server doesn't know any better because it was deliberately fed bad information designed to trick you into going somewhere else."

He said the latest versions of DNS software tosses out "additional records," but versions prior to 4.9.6 and 8.1.1 cache them instead. A large number of DNS servers still use older versions of the software.

Asked whether the hack was an effective protest or wound up damaging his own credibility, Kashpureff replied: "Both." ■



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# Microsoft details NT 5.0 features

By Christine Burns  
Seattle

Microsoft Corp. last week disclosed details on how its upcoming Windows NT Server 5.0 will play a pivotal role in making Windows desktop machines easier to manage and less expensive to own.

Company officials told financial analysts at a Windows strategy briefing here that Microsoft would cut the cost of owning 32-bit Windows desktop machines in half with several new server-based technologies. The services tap into the NT 5.0 Active Directory Service and use it as a central repository for distributed desktop system and application configuration management.

Users will be able to get a first glimpse of all of these server-side features—which are collectively called Zero Administration Windows (ZAW)—when Microsoft releases the NT 5.0 beta in September at its professional developers' conference in San Diego.

Microsoft already has ZAW kits for Windows 95 and NT 4.0 Workstations, which are add-on client packages that allow an administrator to limit end-user access to system files and unau-

thorized applications.

These features will be integrated into Windows 98 and NT Workstation 5.0.

The NT 5.0 beta will contain a new PC management feature called IntelliMirror that automatically mirrors all end users' data, applications and customized operating system settings with an NT 5.0 server.

Therefore, if a desktop system crashes, when the user reboots to the network, the directory service verifies the user and the system serves up all operating system and application software to which the user has rights. IntelliMirror also gives roaming users access to a consistent desktop environment and the assurance that their data is safely maintained on an NT server.

"The network effectively becomes a cache for all the data that you have in your local environment. The synchronization happens between the two systems without the end user even thinking about it," said Jim Allchin, senior vice president of Microsoft's personal and business systems group.

"Microsoft has taken a page

out of the Unix style of computing to get to this kind of managed state," said Jean Bozman, a software analyst with Framingham, Mass.-based International Data Corp. "It's not the same code [as Unix machines use], but it is the same concept for getting more control over the distributed desktop machines. It's more efficient."

Additionally, NT 5.0 will support automatic system upgrades, which will allow an administrator to change a single operating system out on the network. The changes will automatically flow out to all designated clients as dictated by user profiles stored in the directory. Allchin said this feature also will apply to application software upgrades.

In a related announcement, Microsoft officials said future versions of its Office application suite will contain features that address total cost of ownership issues.

Those upcoming features, which will make the suite more manageable, include support for roaming users, a self-repairing component that automatically replaces missing system files, and an enhanced run-from-server configuration that requires no Office application files installed on the local machine to run. ■



Microsoft's Jim Allchin is pushing NT 5.0 as an easy way to manage 32-bit desktops.

## Bay rolls out SNA enhancements

Version 11.02 of BayRS addresses DLSw scalability.

By Jim Duffy

Billerica, Mass.

Bay Networks, Inc. last week bolstered its SNA integration capabilities with a new version of BayRS routing software.

BayRS 11.02 features a suite of SNA router enhancements designed to ease the integration of IBM mainframe and midrange systems with IP networks. The new features are designed to increase the scalability of mixed SNA/IP environments.

But scalability may not be the issue that continues to keep SNA and IP networks segregated, analysts said.

"Users are still hesitant to go full bore [to IP] because they can't get the response time guarantees" they are accustomed to with connection-oriented SNA environments, said Frank Dzuback, president of Communica-

tions Networks Architects, Inc. in Washington, D.C. "You're talking about taking a performance-guaranteed environment and piggybacking it onto a connectionless world with no guarantees."

Bay's new software includes support for Data Link Switching (DLSw) Version 2, multiple Physical Unit Type 1 (PU1) devices and DLSw Backup Peers. DLSw allows SNA traffic to flow over an IP network.

DLSw Version 2 enables a single router to scale to support larger networks. By establishing a TCP/IP session between routers only when required, DLSw Version 2 lets one router support a greater number of sessions typical of large SNA networks, Baysaid.

For AS/400 environments, BayRS Version 11.02 supports

PU1 devices, which are Synchronous Data Link Control-attached controllers such as the IBM 5294 and 5394. Support for PU1 in BayRS increases network availability by allowing network managers to locally acknowledge packets and prevent SNA session timeouts.

This enhancement also supports virtual multidrop that allows multiple PU1 devices, on the same or different routers, to connect to an IBM AS/400 using a single SDLC line.

BayRS 11.02 also enables users to define a backup DLSw peer to be used when the destination router or interface is unavailable.

By initiating a new DLSw session with a designated backup router, network managers can ensure the delivery of information to remote SNA equipment, thereby increasing network availability, Baysaid.

BayRS 11.02 is available now.

© Bay: (508) 670-8888

## 3Com, IBM broaden partnership by trading key net products

3Com gains ATM technology; IBM gets Ethernet gear.

By Jodi Cohen

3Com Corp. and IBM last week enhanced their product partnership in an attempt to shore up their respective technology shortcomings.

Under the deal, 3Com will gain an array of ATM functionality while Big Blue gets an assortment of Ethernet, Fast Ethernet and Gigabit Ethernet gear. The first fruits of the deal are expected by year-end.

A major side effect of the deal is the increased uncertainty about IBM's partnership with Xylan Corp., which was intended to provide IBM with similar technology, analysts said.

Industry observers had already been questioning the Xylan relationship because of the product overlap that exists between IBM's 8260 intelligent

consultancy in Ashburn, Va.

### Deal details

But most analysts said the 3Com-IBM deal makes sense.

"They've got a long-standing relationship, and they're happy with it, so why not improve on it?" said Don Miller, chief analyst of network services at Dataquest, Inc., a market research firm in San Jose, Calif. "This doesn't seem to be just a group hug, there's some real meat here with the product and technology exchange."

Specifically, 3Com picks up IBM's ATM chip set, dubbed Prizma, along with ATM uplinks for its workgroup switches.

3Com also wins IBM's Multiprotocol Switching Services (MSS) software, which will add MultiProtocol over ATM support

### 3COM AND IBM SWAP IT UP

Last week, the vendors expanded their partnership to exchange additional key products and technologies.

#### What 3Com gets from IBM:

- ▶ Prizma ATM chip set
- ▶ Multiprotocol Switching Services software, which will add MPOA and token-ring LAN Emulation services support to 3Com's existing LANE
- ▶ ATM uplinks

#### What IBM gets from 3Com:

- ▶ Ethernet-to-ATM ZipChip
- ▶ SuperStack II 1000 and 3000 workgroup switches
- ▶ Fast Ethernet and Gigabit Ethernet technology for IBM's 8260 backbone switch

hub (the IBM box 3Com acquired through Chipcom Corp.) and IBM's 8274 Route-Switch, which is Xylan's Omni-Switch. Now, with the enhanced 3Com-IBM deal, the Xylan relationship appears even rockier, one analyst said.

"IBM hypes Xylan one month and 3Com the next—it's very confusing to the user," said Anura Guruge, an independent analyst based in New Ipswich, N.H. "IBM needs to make up its mind."

Although he refused to comment about the Xylan relationship during the press conference, Rick McGee, vice president of strategy and business development with IBM, said his company will clarify its Xylan relationship in the next few weeks.

In fact, current 8274 customers may want to press IBM on the longevity of the Xylan-based product offering, according to Craig Johnson, an analyst with Current Analysis, Inc., a

to 3Com's existing LAN Emulation services.

MSS will work in conjunction with 3Com's Fast IP software to provide customers with Layer 3 switching.

One 3Com user is happy about the deal. "3Com has to make these moves to be a leader," said J.P. Scarisbrick, director of network access services at the Beth Israel Medical Center in New York.

"Look at how many partnerships Cisco [Systems, Inc.] has made, and now 3Com is showing it can do the same thing," Scarisbrick said.

As for IBM, it acquires 3Com's Ethernet-to-ATM ZipChip, a processor designed for packet-to-cell conversion in switches, as well as 3Com's SuperStack II 1000 and 3000 workgroup switches.

In addition, IBM plans to integrate 3Com's Fast Ethernet and future Gigabit Ethernet technology into the IBM 8260 backbone switch. ■

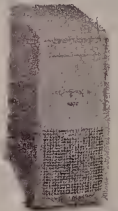


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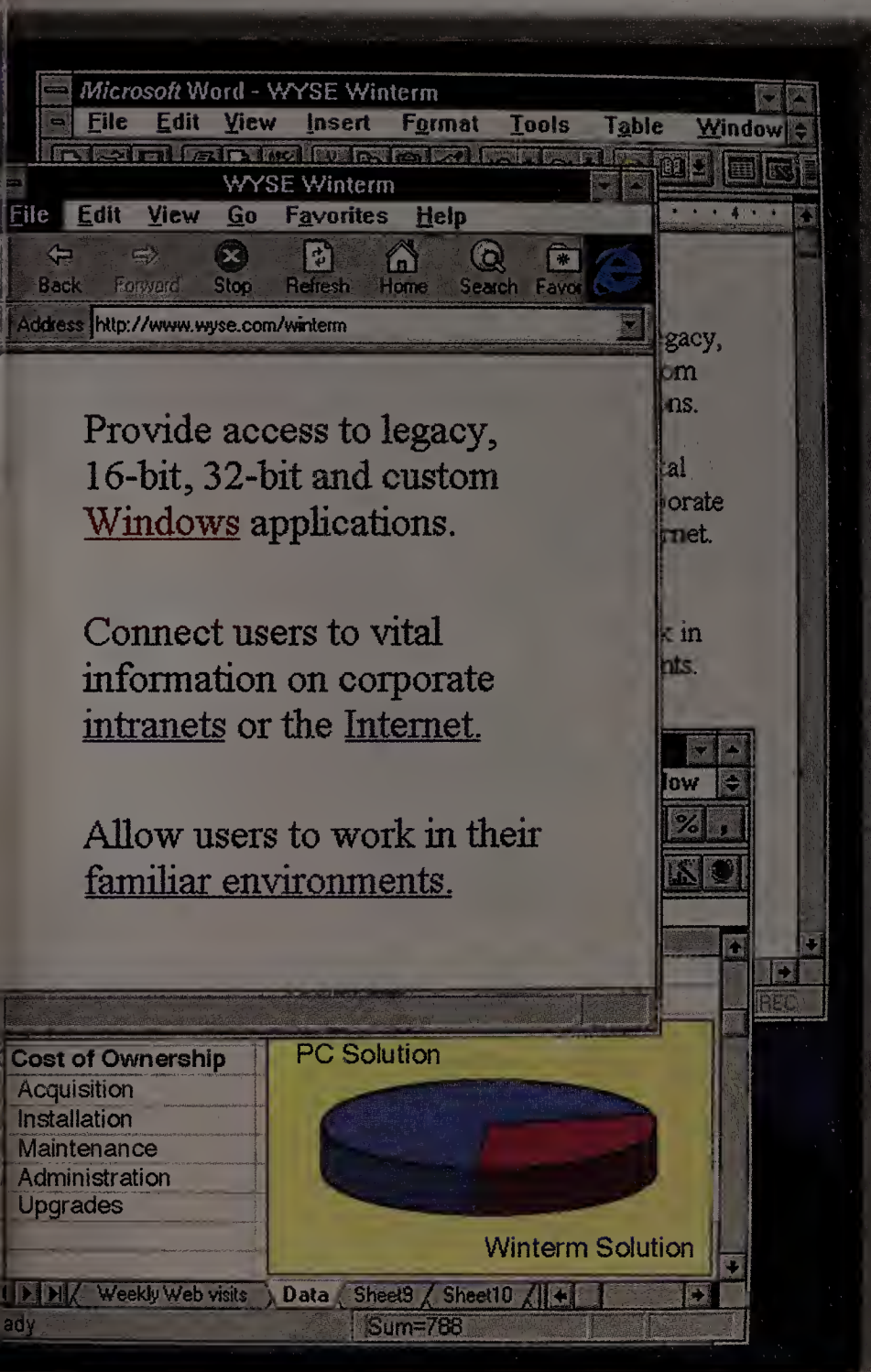
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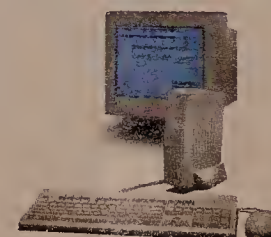
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# Sun warms up Java software for Windows

*Sun rolls ActiveX functions into Java; reveals details on new smart card technology.*

By Ellen Messmer

Sun Microsystems, Inc.'s JavaSoft division, eager to get Java into any Windows-centric enterprise network, yesterday

released software that lets developers convert Microsoft Corp.'s ActiveX components into Java.

JavaSoft also released Java Perfor-

mance Runtime for Windows, roughly 2M bytes of code users can add to Windows 95 or NT to run Java applications. JavaSoft Product Manager Eric Chu said

he also hoped developers would embed the software into their products.

"What we call the Java Performance Runtime Environment also has a Just-in-Time (JIT) compiler," Chu said. The JIT compiler, which speeds the compilation of Java code to run on native operating systems, is in beta release. The Java Performance Runtime for Windows, which adds the Java Development Kit 1.1 Java Virtual Machine to Windows, is considered to be in its final version.

JavaSoft executives also said the company is creating a set of Java APIs specifically for deployment in equipment for blind, deaf and other handicapped users. Calling it the Java Accessibility API, Marketing Director David Spenhoff said the APIs are available for inclusion in any new products developed for the handicapped.

"This brings Java to the user with disabilities," Spenhoff said.

Perhaps to demonstrate that developers are becoming Java true believers, JavaSoft showcased several software developers at Internet World 97 in Chicago, such as Trade'x Electronic Commerce Systems, Inc., that have recently had their products certified by an independent test lab as "100% Pure Java."

Finally, JavaSoft said it will post the Java Card 2.0 draft specification for public review in early September.

The second version of the smart card's API will include international language support and the ability to process data using 16- and 32-bit microprocessors as well as 8-bit processors.

More information is available at [www.java.sun.com/products/jdk/1.1](http://www.java.sun.com/products/jdk/1.1). ■



**JavaSoft's Eric Chu**  
*hopes developers will embed the Java performance Runtime for Windows into their products.*

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HOW SAFE IS

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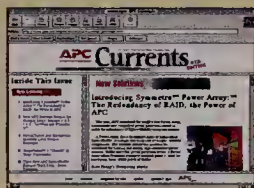
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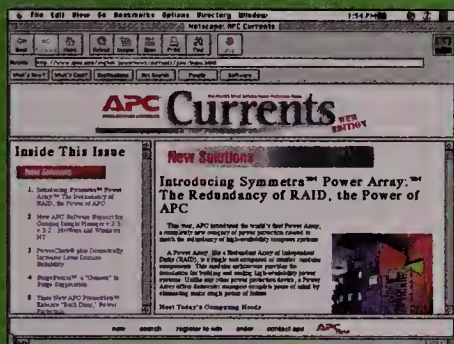
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**See page 17**

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**See page 19**



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If you see an APC commercial on TV this summer, E-mail us at [tv@apcc.com](mailto:tv@apcc.com), tell us where and when, and we'll send you an APC coffee mug.



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# Power Companies Warn Users: "Beware of Summer Blackouts."

Most of the time electrical problems hit when you least expect them. But what if you were notified in advance? You may have enough time to shut down your essential electronics, or at least plan and implement a solution that will eliminate the threat of hardware damage and data loss due to power problems. This summer, utility companies nationwide are giving network administrators and computer users just that kind of warning. But is a warning enough? What happens to your business when the power is out?

## The Coming Shortage

As the power industry gears up for expected summertime brownouts (resulting from increased power demand), lightning storms and various seasonal anomalies, a new threat to network computing has appeared on the horizon: planned power outages due to the expected power shortages.

According to *Electric Utility Week* (May 5), Upper Midwest utilities are "reactivating mothballed power plants, scrambling to implement transmission reinforcement projects, and attempting to secure generation and transmission capacity from neighboring utilities in an effort to head off possible power shortages this summer."

Although industry experts like the North American Electric Reliability Council have predicted such shortages for more than a year (see APC Currents, June p.8), the immensity of the problem combined with the volatility of recent deregulation in the utility industry has left few options besides this desperate scramble for surplus power and planned outages.

On April 10, Wisconsin utilities warned that with about one-third of the nuclear generating capacity in Wisconsin and the Upper Midwest temporarily out of service, the region could be facing electricity supply shortages over the next six months.

Illinois faces the same predicament. On April 28, Illinois Power reported that it would restart three mothballed Wood River natural-gas-fired units. Commonwealth Edison Co, Chicago, Ill, is seeking industrial and commercial customers with their own dormant generators that may help ease some of their load. The company is intensifying infrared fly-overs, looking for hot spots on its transmission system that need to be repaired or replaced.

## It's The Same All Over

The outlook is the same in other parts of the country as well. According to the Summer Summary of the New England Power Pool (NEPOOL), a consortium of that region's electric

utilities, "Hot and humid summer days in New England can create the highest peak electric demands of the year, and often, these demands can put a strain on electricity suppliers."

NEPOOL reports in its summary that due to four of the region's biggest power plants being off line; three nuclear plants at Millstone Point, Connecticut and the Maine Yankee nuclear power plant, "New England utilities are taking aggressive steps to either generate additional power or conserve existing resources."

New England utilities are also proposing the reactivation of a number of "mothballed" generating units, much like their Midwestern counterparts. In addition, NEPOOL suggests in its summary that customers "conserve energy and...use their own emergency generation, reduce usage or shut down operations as needed."

What does this mean for computer users? Well, if even if you have your own power generating facility to produce electricity for your company, you will still need instantaneous battery back-up power protection to ride through brownouts and to bridge the gap before generators kick in. Without that bridge, your systems will certainly crash, corrupting data and possibly damaging hardware. Most businesses, however, except hospitals and the utilities themselves, don't have any generating systems in place. Dependence on the utility for electricity is virtually universal.

If the power companies can't reactivate enough closed and costly power plants, or scrape up sufficient surplus power from other regions, the summer could prove disastrous for any business that depends on computing to generate revenue, serve customers or manage operations.

According to the New England Power Pool summary, "Although all of these efforts are aimed at avoiding capacity shortages, ...NEPOOL might have to resort to voltage reductions, public appeals for customer load curtailment or power interruptions in order to meet demand. When feasible, warning of interruptions will be given."

Of course, warning will not always be provided, leaving network administrators and power customers with one more threat to their business, not to mention their peace of mind.

The only solution to the grim reality of US power capacity problems is to be sure your networks are protected by premium power protection. Such protection has become a necessity in an environment where lost power can often mean a lost business (see related story, page 12).

*"NEPOOL might have to resort to voltage reductions, public appeals for customer load curtailment or power interruptions in order to meet demand. When feasible, warning of interruptions will be given,"*

*-Summer Summary of the New England Power Pool (NEPOOL)*





## New Solutions

# APC SurgeStation™ Unveiled at Spring COMDEX, Promises Summertime Peace of Mind

In the past five years APC has sold over 4,000,000 surge suppressors. They have been praised for their reliability and effectiveness in the field, and have saved untold millions of dollars of computer and peripheral equipment from surge and lightning damage.

The SurgeStation, APC's latest offering, accepts the challenge issued by APC customers to incorporate several "dream features" while maintaining the key elements and high-performance that make SurgeArrest the most reliable and one of the best selling surge suppressors in the world.

Months of intensive design work were spent to bring you the newest generation of SurgeArrest: APC SurgeStation. The development project, code named Genesis, was a revelation in surge suppressor design. The finished product, introduced in June at the Spring COMDEX trade show, offers several unique features and benefits.

### All the Features You Wanted

The SurgeStation products have eight outlets, including three outlets spaced to handle transformer blocks easily, and two "always on" outlets for convenience. The new building wiring-fault indicator, located at the base of the power cord, clarifies the meaning of the indicator and allows you to diagnose mis-wiring as

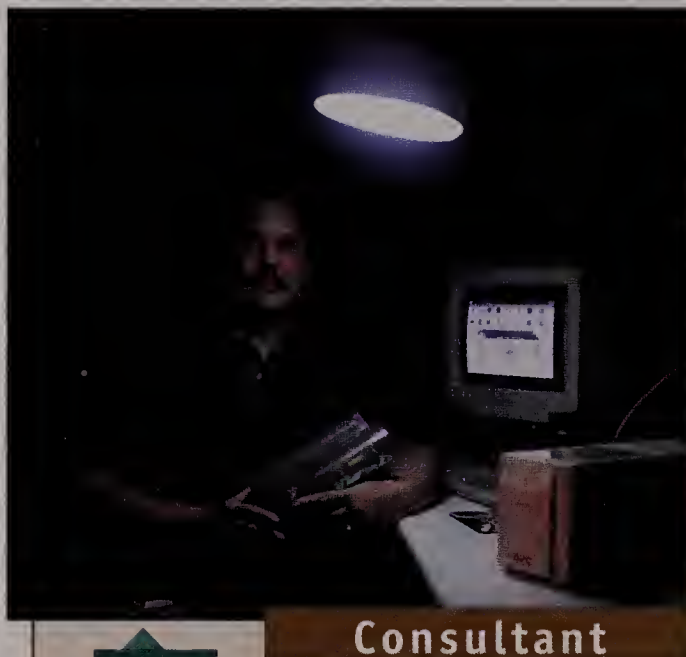


### Your "Dream" Features:

- "I want to plug transformer blocks without covering up any other outlets."
- "I need more outlets for peripherals."
- "I want to plug a telephone line and a modem dataline into the same surge protector."
- "A switch easier to turn on and harder to turn off."
- "Give me a right angle plug so I can move my desk back against the wall."
- "I need some outlets that are always on."
- "Can you help organize all these cords?"

### APC Listened!

For details about how to save your computer and peripherals from lightning and other power anomalies with APC SurgeArrest SurgeStation, call 888-289-2722, ext. 8181.



**Consultant**



Joe Brickler  
JTB Office Automation Consultants  
Cincinnati, OH

## "APC Makes a Major Difference in Keeping Your Equipment From Being on an Insurance List."

"JTB Office Automation Consultants resells, repairs, installs networks, and writes customer software, in addition to being an ISP. This story starts the Friday before the flood of the Ohio Valley- where we are located. Winds were very heavy on that day, and caused a power outage.

"Since it was 6:00 P.M. I decided to go home where I could work on another project only to find my computer down at home. First, thinking the computer was broken, I checked the PC, then the breaker box, then finally my APC SurgeArrest. I pulled the SurgeArrest out from the desk to find out it was blown. It was a clear unit and since it was clear, you could see exactly where it had blown. I was very relieved that my PC survived.

Later that night my stepdaughter asked me what the strange smell was in the house. After

looking around I found the surge had hit the Brand C protector (C meaning Cheap). I found the television in the living room was fried and the cable box controller was melted with a black char leaving burns all over the steel converter box. A police officer later told me that two doors down, a cable box actually caught on fire. I'm lucky nothing was wrong with my PC - thanks to the APC SurgeArrest.

I have been in the business since 1986 and never paid that much attention to brand of surge suppressors. Now I know that APC makes a major difference in keeping your equipment from being on an insurance list. Now at JTB, every computer sold will have a APC SurgeArrest or no warranty, and that's final. I'll give it to them if I have to. There is no compromise."

soon as the unit is plugged in. As if those features weren't enough, we also added a right-angle plug to help maximize your work space, and a switch large enough to be pressed with your foot, but recessed enough to prevent an accidental turn-off. Finally, the SurgeStation includes cord-management straps and holders which let you wrap up and organize excess or unruly power cords.

To resolve the challenge of protecting more than one dataline, SurgeStation models are available with protection for multiple telephone lines, telephone and cable/DSS protection, or telephone and network protection (10BaseT, 100BaseT, and Token Ring), all within a single surge suppressor. The SurgeStation can be easily mounted on the wall, or fit on or under your desk or workspace.

### Lifetime Equipment Protection Insurance



SurgeStation joins APC's SurgeArrest Professional, Performance and Network product families, and comes with up to \$25,000 of lifetime insurance against surge damage to properly connected equipment (US and Canada only. See policy for details.)



# CRN: "Increase Network Uptime, Reliability." with APC's PowerAudit™

## Computer Reseller News

Building or reconfiguring an entire network can be one of the greatest challenges a network administrator faces. Often, meeting the challenge means bringing in the support of an expert who knows the ins and outs of both your current and future system. Now, APC PowerAudit gives you a new service tool to ensure your network transition goes smoothly if not according to plan, and *Computer Reseller News* has found that the service means "increased network uptime and reliability."

APC's PowerAudit helps prevent costly network or system failures by providing a comprehensive overview of your network's current electrical environment and by designing custom, detailed and bulletproofing strategies for critical equipment.

APC PowerAudit engineers make recommendations to bring your site up to IEEE, computer-grade power standards and down from the dangerous precipice of bad power.

PowerAudit provides a fail-safe way for corporations to build an excellent network foundation,

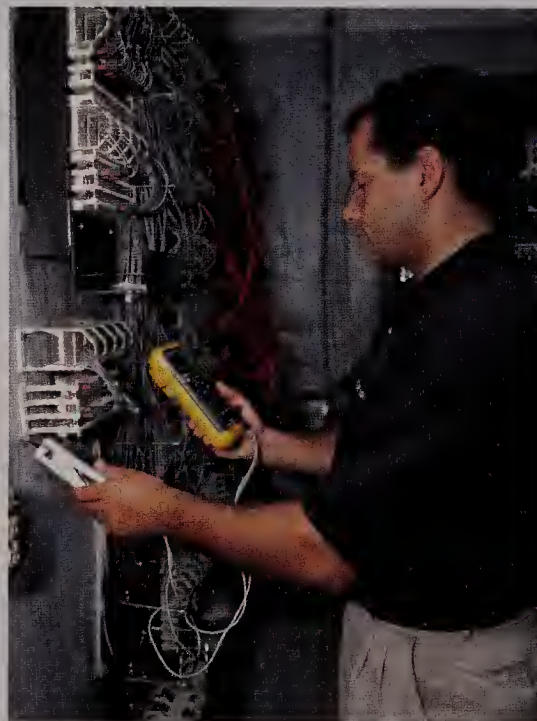
no matter how unreliable the utility power is.

Why is a PowerAudit so important? According to Casey Ives, managing director for Intelligent Electronics, "Hardware and software partners have done a great job increasing network availability. Power is the last frontier in network availability."

CRN also recognized that a PowerAudit uncovers a variety of problems that may have nothing to do with the computer equipment: "It may be that the power infrastructure in the building was not designed to conform with National Electrical Code (NEC) or Institute of Electrical and Electronics Engineers (IEEE) specifications," says CRN. "Or it may be that a business is simply overloading power supplies, potentially setting the stage for a hazardous situation."

Unfortunately, wiring deficiencies in new and old buildings alike bring about the greatest number of network power problems, accounting for nearly 50 percent of all corrupted and lost data. In fact NEC wiring specifications are not sufficient to protect your network from damage or data loss.

In 75 out of 75 PowerAudits performed last year, problems were uncovered by engineers that were hazardous to computer equipment and data or that violated national or local code.



For more information about planning with PowerAudit, call 888-289-2722, ext 8181, or download a sample report from the PowerPage.™

For more information about PowerAudit, call fax the reply card at the back of the magazine to our resource center for free literature, or call 888-289-2722, ext. 8181. Visit APC's PowerPage™ on the Web at <http://www.apcc.com>, where you can examine a sample PowerAudit report.

Call 888-289-2722, ext. 8181 to receive a FREE sample PowerAudit report.

## Top Business Performer: Another Reason to Choose APC

APC recently ranked highly in two finance/business magazines, its stock performance mirroring its successful performance in sales.

### APC: Five Years in NASDAQ 100

In the May 12 special section of Fortune focusing on the Nasdaq 100 Index, APC was ranked as the second best price/performance stock in the index in 1996. APC's stock had appreciated 186.8 percent, second only to Dell Computer which posted a 206.9 return in 1996. Fortune cited APC's record sales of \$707 million and earnings of \$92 million for that year.

To be included in the Nasdaq 100, according to the same special section, a company must be "among the larger, non-financial stocks on the Nasdaq Stock Market," and their stocks must, "have an average daily trading volume of more than 100,000 shares."

The article continues, "...while almost all are over \$1 billion in market value, \$6 billion is the average. In addition, companies have to be 'seasoned' by being listed on the Nasdaq Stock Market for two years before they can be measured for the index by other quantitative standards." APC has been a member of the Nasdaq 100 since 1993.

## FORTUNE® NASDAQ 100®

soned' by being listed on the Nasdaq Stock Market for two years before they can be measured for the index by other quantitative standards." APC has been a member of the Nasdaq 100 since 1993.

### APC Making The Grade

In the May 20 issue of Financial World, APC was given the ranking of A [very high] in its

Independent Appraisals of Stocks section. The grades Financial World hands out range from A+ [superior], A [very high], A- [high], B+ [above average], B [average], B- [below average], C [speculative] to D [poor].

Financial World lists the 616 largest U.S. companies traded over the counter, based on market value. Each stock is rated on, "three-month percent change in stock price; percent change in trailing four quarters' sales; percent change in trailing four quarters' earnings per share; debt as a percent of equity; and return on capital."

For more information about APC financial performance, or to obtain an annual report, call 401-789-5735 x 2994 or E-mail [investorrelations@apcc.com](mailto:investorrelations@apcc.com). American Power Conversion Corp. stock is traded on the NASDAQ exchange under the symbol APCC.



**OFTEN, NOTHING COSTS YOU MORE  
THAN A SERVER CRASH.**





# NOW SUPERIOR SERVER PROTECTION COSTS YOU NEXT TO NOTHING.

NOW AWARD-WINNING APC® PROTECTION COMES STANDARD WITH THESE SYSTEMS.

## ENTRY LEVEL SERVER

### DELL® POWEREDGE® 2100 SERVER

- 200MHz PENTIUM® PRO PROCESSOR
- 32MB ECC Memory (512MB Max.)
- 256KB Integrated L2 Cache
- Integrated Ultra/Wide SCSI-3 Controller
- 2GB Ultra/Wide SCSI-3 Hard Drive
- 8X SCSI CD-ROM Drive
- Intel® Pro 100B PCI Ethernet Adapter
- Intel LANDesk® Server Manager v2.52
- 6 Expansion Slots: 3 PCI, 3 EISA
- 6 Drive Bays

★ **Smart-UPS® 700 from APC**

★ **Free PowerChute® Plus Software**

### ★ **Optional SmartSlot™ Power Management Accessories**

- 3 Year Limited Warranty<sup>†</sup> with 1 Year of NBD On-site<sup>†</sup> Service
- 24x7 Dedicated Server Hardware Technical Telephone Support
- Free 30-Day Server Integration Telephone Support

**\$3099**

Business Lease<sup>‡</sup>: \$115/Mo.  
Order Code: 200188

## MID-RANGE SERVER

### DELL POWEREDGE 4100 SERVER

- 200MHz PENTIUM PRO PROCESSOR (Dual Processor Capable)
- 64MB ECC Memory (1GB Max.)
- 512KB Integrated L2 Cache
- 2 Integrated Ultra SCSI-3 Controllers
- 4GB Ultra/Wide SCSI-3 Hard Drive
- 8X SCSI CD-ROM Drive
- Intel Pro 100B PCI Ethernet Adapter
- Intel LANDesk Server Manager v2.52
- 8 Expansion Slots: 5 PCI, 3 EISA
- 10 Drive Bays

★ **Smart-UPS 1400 from APC**

★ **Free PowerChute Plus Software**

### ★ **Optional SmartSlot Power Management Accessories**

- 3 Year Limited Warranty<sup>†</sup> with 1 Year of NBD On-site<sup>†</sup> Service
- 1 Year DirectLine™ NOS Support
- 24x7 Dedicated Server Hardware Technical Telephone Support
- Free 30-Day Server Integration Telephone Support

**\$6849**

Business Lease: \$247/Mo.  
Order Code: 200190

## HIGH-END SERVER

### DELL POWEREDGE 6100 SERVER

- 2x200MHz PENTIUM PRO PROCESSORS (Quad Processor Capable)
- 128MB ECC Memory (4GB Max.)
- 512KB Integrated L2 Cache per Processor
- 2 Integrated Ultra/Wide SCSI-3 Controllers
- 3x4GB Ultra/Wide SCSI-3 Hard Drives
- 8X SCSI CD-ROM Drive
- PowerEdge Expandable RAID Controller
- Intel Pro 100B PCI Ethernet Adapter
- 10 Expansion Slots: 6 PCI, 4 EISA
- 10 Drive Bays

★ **Smart-UPS 1400 from APC**

★ **Free PowerChute Plus Software**

### ★ **Optional SmartSlot Power Management Accessories**

- 3 Years of NBD On-site<sup>†</sup> Service/On-site Setup and Validation
- 24x7 Dedicated Server Hardware Technical Telephone Support
- Free 30-Day Server Integration Telephone Support

**\$16,099**

Business Lease: \$580/Mo.  
Order Code: 200220

Given everything that's riding on your company's servers, crash protection is something you can't afford to be without. Which is why every Dell PowerEdge Server comes with the industry-standard features you've come to expect. And since 45%<sup>††</sup> of all data loss is a result of bad power, we've just done something to bolster our award-winning reliability. We have worked with APC, the industry leader in power protection with over 8 million satisfied customers and a host of awards. Which means you'll find APC protection available across the entire line of PowerEdge servers, along with a \$25,000 Lifetime Equipment Protection guarantee\* to replace or repair your server should a power-related problem arise. So choose your Dell PowerEdge. For high-end reliability there's the Dell PowerEdge 6100, loaded with redundant cooling fans, ECC memory, hot-pluggable drives and the Smart-UPS 1400 with optional SmartSlot Power Management accessories. Or choose the Dell PowerEdge 4100, which also comes with APC Smart-UPS, a recent recipient of *PC Magazine's* Editors' Choice Award.<sup>††</sup> Or the Dell PowerEdge 2100, *Network Magazine's*<sup>‡</sup> Small Business Server of the Year. Whichever you choose, two features remain consistent: reliability and value. Things no business can afford to overlook.

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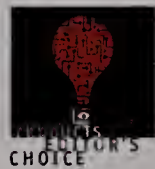
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<sup>†</sup>For a complete copy of our Guarantees or Limited Warranties, please write Dell USA L.P., One Dell Way, Round Rock, TX 78682. Attn: Warranty. See policy for details. <sup>††</sup>1993 Contingency Planning Research. <sup>‡</sup>Nov. 19, 1995 issue for APC Smart-UPS. <sup>‡‡</sup>May 1997 issue. <sup>‡‡‡</sup>Leasing arranged by third-party leasing companies to qualified customers. APC-on-site service provided by an independent third-party provider. May not be available in certain remote areas. \*Prices and specifications valid in the U.S. only and subject to change without notice. APC, the APC logo, Smart-UPS, PowerChute and Protect ME! logo are registered trademarks, and Protect ME! and SmartSlot are trademarks of American Power Conversion, Inc. Intel and Pentium and LANDesk are registered trademarks of Intel Corporation. ©1997 Dell Computer Corporation. All rights reserved.



# VARBusiness Says New Symmetra is Tops



VarBusiness wasted no time recognizing APC's most recent innovation, the Symmetra™ Power Array™, as the kind of product that the computer industry needs. The magazine editor, Jenna Kern, points out that sensitive electronics represent a growing majority of the devices consuming power in North America. That trend means power protection is essential.

"The need for...Symmetra is stronger now than ever, given the movement of business-critical apps from the glass house to smaller data centers with lower-cost file and Web servers." continued VarBusiness editor Jenna Kern in citing the product as Editor's Choice. "Such apps often involve crucial functions such as Web-based OLTP, so continuous power is essential."

Kern was quick to key in on the features and benefits that make the Power Array such a critical

*"Symmetra™ Power Array™ energizes the high-end UPS arena."*

-Jenna Kern, VARBusiness Editor

**VARBusiness**

element of datacenters everywhere: "Symmetra is made up of hot-swappable 4kVA power modules and battery modules that can be upgraded as needed. That way, [you] can purchase the backup capability they need now and easily scale up when the time comes, which it inevitably will.

"This hot-swappable nature makes it easier for [you] to manage and service the Symmetra. The system's four SmartSlots let network administrators choose how they want to be informed in the event of an outage: via the network, SNMP, the Web or phone/bceper. If any modules need servicing, [you] can pull them out and work on them without shutting down the system."

With seasonal and year-round power problems on the rise, Symmetra's unique protection promises to help administrators everywhere rest a little easier. For more information about protecting your datacenter, call 888-289-2722, ext. 1001.



Symmetra has taken the experts by storm. Learn how to protect your datacenter: Order a FREE video by calling 888-289-2722, ext 8181.

## How Much is Power Array™ Uptime Worth to You? This ROI Worksheet Reveals the Cost of Your Power Availability Gap

Complete the ROI worksheet to see what redundancy and scalability mean to your bottom line.

If you're a datacenter manager, the difference between a corner office and a cramped cubicle can be measured in your network's reliability. That's why you've invested thousands in clustered servers and RAID arrays. But when the most common cause of downtime is bad power – nearly twice as common as human error – exactly how safe is your network, not to mention your career path?

According to the published Mean Time Between Failure (MTBF) figures of competitors' units, a typical legacy UPS is rated at 95% system availability, leaving a 5% power availability gap. Use the worksheet to compute what that availability gap costs you, then determine how much you'll save when you replace your legacy system with a redundant, fault-tolerant Symmetra Power Array.

For more information about how this award-winning technology can protect your datacenter, call 888-289-2722, ext. 8181

### ROI Worksheet

#### Average Cost per Downtime Event

		[Sample Data]
Company size (Annual Revenue):	1	[\$400 mil.]
% Revenue directly linked to systems/network:	2	[80%]
Actual system-related revenue risk:	3	[\$320 mil.]
Revenue loss per hour downtime: [3 / 2000 hrs.]:	4	[\$160,000]
Personnel cost per hour: [# of users x hourly wage]:	5	[\$30,000]
Rev. & Pers. cost per event [4 + 5 x MTTR (24 hours)]:	6	[\$4.56 mil.]
Lost data cost per event: [4 x 8 hrs x 12%]:	7	[\$153,600]
Total cost per event [6 + 7]:	8	[\$4.71 mil.]

#### A. No UPS protection

Risk of downtime =  
15\* x 8

- \$ [\\$70.7 mil.]

#### B. Legacy UPS

Static downtime risk =  
15 x 8 x .05\*\*

- \$ [\\$3.54 mil.]

#### C. Power Array

Flexible downtime risk =  
15 x 8 x n (n = % gap<sup>1</sup>)

- \$ [\\$7,065]

\*LAN Computing, 11/2/92 \*\*Published Competitor Legacy UPS Availability = 95% <sup>1</sup>Varies based on Power Array configuration



# NEW 3U Smart-UPS® Rack-mount: All the Power in a 40% Smaller Size

## New 3-U Rack-Mount Chassis

APC announces a rack-mounted Smart-UPS uninterruptible power supply (UPS) in a new 3U rack-mount form factor. The SU2200RM3U and SU3000RM3U rack-mount Smart-UPS utilize a new 3U (5.25") chassis, reduced from the previous 5U (8.75") chassis. The units provide the same superior functionality and features of the existing Smart-UPS line in a compact, more convenient size.

The rack-mount Smart-UPS line is designed to provide performance power management for advanced business networks. Mounted in industry-standard, 19" racks and enclosures like APC NetShelter™, and offering full SNMP manageability, the units are an ideal protection solution for today's rack-mounted network and internet-working equipment.

"With more computer equipment moving into rack enclosures, we wanted customers to be able to utilize more server and internetworking equipment. The new Smart-UPS 2200 and 3000 rack-mount models accomplish this by reducing the UPS height to a new 3U low profile," said Scott Olsen, APC's product manager, Network Power Solutions Division.

Compatibility with today's server management products is a must for critical peripherals. All Smart-UPS products are completely compatible with server management software such as Compaq Insight Manager, IBM Netfinity, and HP NetServer Assistant.

The Smart-UPS family features SmartSlot™, an internal accessory card slot for integrated UPS management. SmartSlot enables the user to customize and enhance the management, control and performance of the Smart-UPS unit. The SmartSlot and optional accessory cards offer customers convenient, seamless integration of UPS accessories.

The PowerNet™ SNMP Adapter card allows the UPS to be connected directly to the network for SNMP management. The UPS Interface Expander card is used for multiple platform, unattended, graceful shutdown from a single UPS. The Call-UPS II card provides remote, out-of-band management of the Smart-UPS over a modem.

## Match Your Black IBM Server

The Smart-UPS Rack-mount 1400, with Black bezels as a special order option, will be added to APC's standard distributor channel. For reference, the black color matches the IBM ThinkPad notebook computer family (IBM Raven Black).

To let you add more components to network enclosures, APC sliced 2U of size from the Smart-UPS 2200 and 3000, without reducing power or runtime.

These units will be available from the IBM PC Company in September of 1997, but are being released through the channel to accommodate IBM customers that have purchased the IBM 325 Rack Drawer Server and want a black UPS to match. These units will also meet growing customer demand for black rack mount UPS solutions for telecom applications as well as non-IBM black rack equipment.



The new black bezel APC Smart-UPS 1400 – shown here mounted in APC's NetShelter – will soon be available as a special order item.



## PowerView™ UPS Management Display

### Hand-held monitoring and control of UPSs and Power Arrays™

When you're trying to solve a network problem, you need comprehensive control of every component of that network, including your APC UPS units. Sometimes those units are difficult to reach or even inaccessible, in a locked room or rack, because by their very nature an APC UPS needs much less attention than other network components. Still, in the event a power problem strikes, you need to be able to control the UPS without a step-ladder or the key to your wiring closet.

PowerView UPS Management Display provides remote control and monitoring of a connected APC UPS. PowerView is equipped with a cable so you can access the UPS controls without having to access the actual UPS.

The PowerView function menu is divided into seven partitioned categories:

1. UPS Status
2. UPS Setup
3. UPS Control
4. Event Logging
5. Control/Status of Accessories
6. Configuration of the Display
7. UPS Diagnostics

Four LED indicators across the upper face of the display provide overall status of the APC UPS:

- LOAD ON Green Indicates that the UPS is supplying power to the load (electrical device).
- ON BATTERY Yellow Indicates that the attached load is powered by UPS batteries.
- BYPASS Yellow Indicates that power to the load is being supplied directly from the power utility. The UPS has been effectively removed from the circuit. (Matrix-UPS and Symmetra only)
- FAULT Red Indicates that the UPS has detected an internal fault condition.

For more information about how PowerView can help you manage your network, call your local APC reseller, fax the reply card at the back of the magazine to our resource center for free literature, or call 888-289-2722, ext. 8181. For instant information, visit APC's PowerPage™ on the Web at <http://www.apcc.com>.



# Protect Network PC Hardware and Data with ONE Solution: APC Back-UPS Pro®

## Protect Network PC Hardware

Hardware represents a huge investment, but most hardware vendors or suppliers don't warranty their products against damage caused by surges, spikes or direct lightning hits.

Back-UPS Pro reduces all electrical surges to safe levels, and stops lightning with a multi-phase system of thermal and fast-acting fuses. Automatic Voltage Regulation and instantaneous battery back-up correct voltage fluctuations. The computer sees only clean, consistent power, even during a blackout.

And as if AC line threats weren't enough, spikes and surges can reach your hardware via datalines and damage your internal computer network interface cards, modems, motherboards, power supplies and hard drives. The surge will move from one component to the next as it dissipates, potentially destroying your whole computer. That's why Back-UPS Pro integrates dataline protection for 10Base-T network cabling (RJ-45) to prevent hardware damage from surges carried on these datalines. Full-time EMI/RFI noise filtration prevents data corruption caused by AC utility line noise.

## PowerChute® Pro: WorkSafe™ Saves Data

Complete data protection and management requires PowerChute Pro software, which is included free with every Back-UPS Pro. Its WorkSafe™ feature protects and saves work in progress in open Microsoft Office applications.

WorkSafe ensures that your valuable data is safe whether or not you are present when a power event occurs. In the event of a power outage, PowerChute Pro activates the WorkSafe feature to save open files and gracefully close open applications, like Microsoft Word and Excel. PowerChute Pro then shuts down the operating system.

The Back-UPS Pro PNP, bundled with PowerChute Pro software, gives the user peace of mind by guaranteeing not only the integrity of the operating system and applications, but also any work in process that may be left open.

PowerChute Pro also features a Graphical

User Interface (GUI) to provide information on UPS Status, recent UPS self-tests and UPS events. The Event Log shows a history of UPS operation to help track a problem to its source. For instance, timed HVAC equipment shutdown may cause a daily power surge as machinery dissipates energy. The log will help match the surge to the cause.

APC provides a complete range of power protection and management options for your network workstations. Whether you need battery back-up power and premium surge suppression for 10 PCs or 10,000, you'll find the perfect solution in the Back-UPS line. For more information, call 888-289-2722, ext 8181 or use the FREE literature request card at the back of the magazine.

## Other PowerChute Pro Benefits:

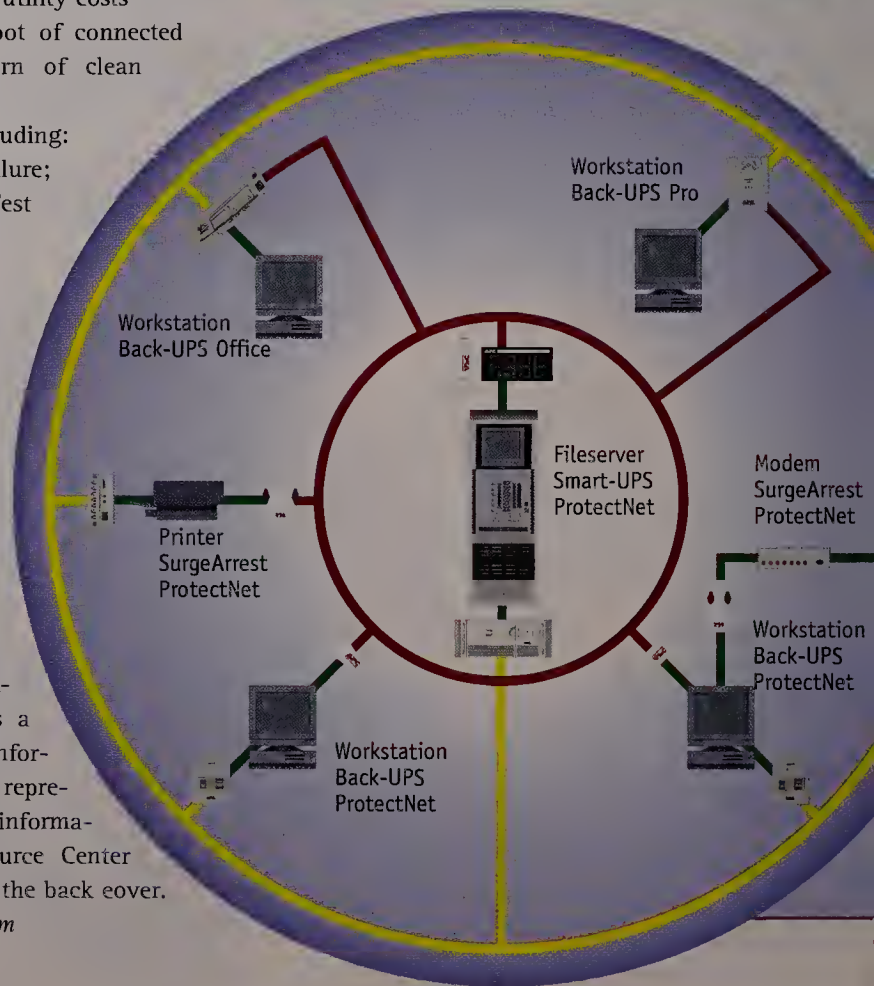
- Scheduled weekly or daily shutdown to help conserve power and cut utility costs
- Automatic System Reboot of connected workstation upon return of clean utility power
- UPS Configuration including: Simulated Power Failure; UPS Self-Test; and Test UPS alarm
- Configurable UPS shutdown and message parameters including: Timed Message Delay; Message Interval; Low Battery Shut-down; and Timed Shut-down allow you to decide to whom and when PowerChute plus should send information about problems.

For the latest NT workstations, Back-UPS Pro is a perfect match. For more information call your local APC representative, or fax/mail an information request to our Resource Center using the reply card inside the back cover. Or visit <http://www.apcc.com>

## Node Protection a No-brainer

"Our current integral use of APC client UPSs was part of our strategic vision to stabilize network services throughout the enterprise regardless of any volatile environmental conditions," says Michael

Mullicane, CIO for America II Group, the 17th fastest growing company in America according to Inc.'s 1994 list. "It's a no-brainer to protect servers, but we learned that it was crazy to bog down our MIS staff with client-related downtime and data loss when an APC UPS is such a cost-effective solution. Now we properly protect every single workstation in our entire global network. We chose APC due to their excellent performance on our servers during Hurricane Erin. In fact, using APC's PowerNet SNMP Manager we can view power status across the network all the way down to the desktop. At the bottom line, having a standardized desktop environment that includes a fully integrated APC UPS is key to providing reliable information access to our employees, and that's what we're all here for."





## The Truth About Telephone Lines: Your Risk of Damage and Data Loss Doubles

Power problems are more prevalent than you might think. In fact, you have a better chance of winning the lottery than of escaping power problems, the single largest cause of computer data loss and hardware damage. If that weren't bad enough, as soon as you plug a phone line into your computer, you double its vulnerability to power problems. Add any peripheral, and the threat triples. Even a shielded AC power line cannot protect against a power surge traveling down serial and datalines to toast your expensive PC.

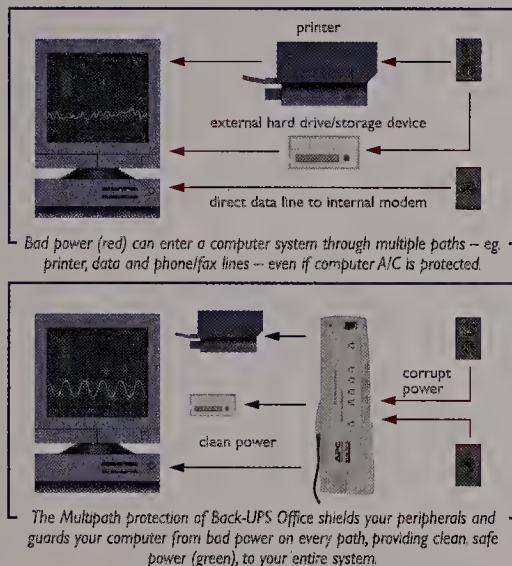
In today's wired world, it is important that every workstation be Internet ready. With built-in phone line/10Base-T network cable surge protection, Back-UPS Office provides a seat belt for the drive on the information superhighway. It stops dangerous surges from entering your computer via phone lines and damaging your modem, network interface card, or even your motherboard.

### Unique Multipath Protection

Multiple peripherals and datalines increase the chances of suffering from crippling power problems, yet these devices are necessary. So what's a computer user to do to minimize the risk?

Once again, Back-UPS Office can solve your problems. Back-UPS Office provides full-time surge suppression and a site-wiring fault protection system that spreads a multipath safety net under any remaining peripherals, like modems, printers, faxes and phone systems.

#### Multipath Means Total Power Protection



Whether on the floor, or mounted on a wall, Back-UPS Office provides the necessary surge protection for all your peripherals, as well as the critical battery backup for the CPU and monitor. The compact Back-UPS Office also streamlines your desktop power protection solution.

It's backed with a two-year warranty and APC's Lifetime Equipment Protection policy that provides up to \$25,000 of insurance against surge

damage to properly protected equipment. (See policy for details. Valid in the United States and Canada only.)

Don't let your workstation fall victim to the hazards of unprotected computing. Keep your system safe with reliable and proven multipath power protection — APC's Back-UPS Office.

For more information on protecting your workstation, call 888-289-2722, ext. 8181.

## APC Solves Mysterious Data Corruption on Protected Servers: Unprotected Network Nodes to Blame



Utility power from an outlet or dedicated AC line is not safe. In fact, a server isn't completely safe from the hazards of bad power until every network node is protected. The mistake many network managers make when planning is to cut costs on workstation power protection. Those nodes pump life-blood into the server in the form of valuable data, and if that data is corrupt because of a local power anomaly, everyone on the network suffers. The cost of replacing such corrupt data, combined with the cost of workstation downtime and recovery can be devastating to a company's bottom line.

Without the premium surge suppression and instantaneous battery backup of an APC UPS, AC utility power subjects connected equipment to a constant barrage of power anomalies, the majority of which are transparent to the casual observer.

Speed and multi-tasking multiplies the risk to highly valuable data and work in process at any given second. Crashes can occur when your unprotected computer is abruptly starved of power, and corrupt files can be replicated to networked PCs or servers, compounding the cost of power problems.

A severe power event, which can strike at any time, prevents normal shutdown procedures. "Hard" shutdowns result in lost data, and can corrupt the master directory preventing automatic Windows system restoration, and increasing recovery time. That recovery time, when multiplied by the number of users on your network, increases costs exponentially.

How great are these costs? Medium sized companies rate them at \$10,000 per hour, according to Electric Power Systems Quality, by Roger C. Dugan, senior consultant, Electrotek Concepts, Inc. Such costs can impact businesses so severely that they never recover from the problem.

For more information about how APC can help protect your network, call your local APC reseller, fax the reply card at the back of the magazine to our resource center for free literature, or call 888-289-2722, ext. 8181. For instant information, visit APC's PowerPage™ on the Web at <http://www.apcc.com>.

Raw Telephone Line  
APC Protected Connection  
Raw Utility Line  
Raw Network Connection

Bulletproof your system with APC's award-winning Back-UPS, Back-UPS Office and Back-UPS Pro. Use APC ProtectNet dataline surge suppressors for comprehensive server, laptop and peripheral protection. Call 888-289-2722, ext. 8181 for more information on how to integrate a complete APC solution, or to find your nearest APC dealer.



# APC PowerChute® *plus* for NetWare With New Support for NDS



PowerChute *plus* v.4.3 for Novell's IntranetWare, the latest version of APC's award winning UPS monitoring software package, will allow system administrators to monitor APC UPSs through the NWAdmin Utility of NDS. System Administrators will observe improved network performance and find it far easier to monitor all their APC UPS resources.

"The customers we share with Novell around the world requested an NDS-aware power protection package to enhance network security, improve network manageability and increase network performance," said Kevin Brown, APC Software Division marketing manager. "APC delivered the solution faster than anyone else."

Novell Directory Services (NDS), is the technology that provides a single, global, logical view of all network services and resources. This allows users to access network services and resources with a single login, regardless of the user's location or the location of the resources. It also offers a single point of control for administrators through graphical administration utilities. Critical to the success of such a scheme is the integration of network component resources into the NDS environment. APC's NDS-aware PowerChute *plus* software integrates power protection into the NDS environment.

"APC is the first UPS manufacturer to actively support NDS," said Michael L. Simpson, Director of Marketing for Novell's Internet Infrastructure Division. "APC's UPSs provide excellent power protection for IntranetWare servers. The release of American Power's UPS integration with NDS is another step forward in the plan to make directory services a single point of administration and single login infrastructure for the entire network."

## Improved Security Validation

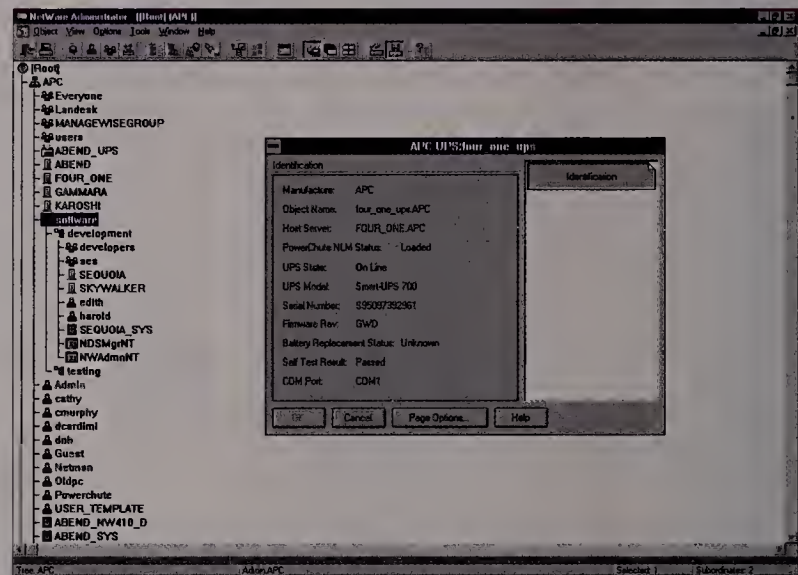
The latest version of APC's power management software uses the built-in NDS security system to maximize your peace of mind.

The benefits of this integration don't end with security: When power problems occur, a quick response time is critical. Having to log on to each server on the network separately just to check the UPS status eats away at precious seconds that should be used diagnosing and correcting the problem. With this new version of PowerChute *plus*, customers have a unified login id and will no longer be prompted to log on every time they want to

access a new server. When accessing PowerChute *plus* through the Graphical User Interface (GUI), users are automatically validated through NDS rather than through a time-consuming additional login id.

## Easy to Use

In even a medium-sized network, remembering which servers are connected to an APC UPS, not to mention which of those are running PowerChute *plus* software is a daunting task. To ease management of network resources, APC coded PowerChute *plus* 4.3 to place an APC UPS object in the NDS tree for each UPS connected to a particular server, and, if PowerChute *plus* is running on the server to which the UPS is connected, an attribute flag will indicate the software's presence. Administrators can easily view all of APC's UPSs in the WAN through the IntranetWare Administration tree.



New NDS-aware PowerChute *plus* improves management, increases security, enhances network performance and offers new ways to monitor your APC UPS units. Call 888-289-2722, ext. 8181 for more information.

**Download PowerChute *plus* upgrades FREE from the web at: [www.apcc.com/english/prods/sware/upgrd](http://www.apcc.com/english/prods/sware/upgrd)**

## Asset Management: View APC UPSs via NWAdmin Utility

System Administrators will now have the ability to use the NWAdmin utility of NDS to view the status of all the UPSs on the Network.

NWAdmin allows users to manage network resources. By providing a snap-in interface for NWAdmin, APC lets users browse the UPS objects with other network resources, and provides an additional option for viewing UPS information.

Every APC UPS will be represented by an APC UPS Icon. When the icon is expanded, the administrator will have access to information like the UPS model, UPS Status, Firmware revision, Serial Number and Replace battery status.

This OS upgrade is a critical step in the effort to provide network administrators with a comprehensive and reliable power protection solution. The software is expected to be released in September of 1997, and will be available for download, free of charge, from the APC PowerPage™ at <http://www.apcc.com>.

For more information about PowerChute *plus* for NetWare and NDS, call 888-289-2722, ext. 8181, or use the reply card at the back of the magazine to order FREE, detailed product literature.

*"APC is the first UPS manufacturer to actively support NDS. APC's UPSs provide excellent power protection for IntranetWare servers."*

-Michael L. Simpson  
Director of Marketing  
Novell Internet Infrastructure Division



## Enhance Network Performance

To further simplify the Administrator's management efforts, PowerChute *plus* will automatically update its information in the NDS tree. That means the software will no longer have to perform "bindery emulation", which caused repeated messages to be broadcast over the network. The result: A significant reduction in network traffic.



Add the performance power protection of this baby



to this **GUTSY**  
Bad Boy



And show mother nature just who's in charge



Just forget about it. Mother Nature ("Mom") and her partner Murphy's Law ("Murph") have nothing on this computing reliability tag team. In the cage match of life, power problems can bring you down faster than you can say "fried motherboard".

The Gateway G6-233M system's foundation is a performance triple play: 233MHz Intel Pentium II processor, 512K cache and 32MB of EDO RAM. This hyper-tweaked bad boy toys with your existing software and strains at the leash to get to the next generation of applications. It's a raging collection of microscopic access times, blazing throughputs, razor-sharp resolutions and cavernous storage.

The standard APC Back-UPS Pro® 650, adds muscle to your madness, keeping your G6-233M up even when the juice is off, and shutting down safe and sound even if you're not around. Surges and lightning strikes get cut down to size whether they knock on the front door (AC) or back (dataline). So call today and place your bet — on Gateway and APC, not Mom and Murph. Then get ready to release a G6-233M and APC thunderclap that will leave the computing world running for cover.

## G6-233M

- Intel® 233MHz Pentium® II Processor with 512K Cache
- 32MB EDO DRAM
- CrystalScan® 700 .28dp Monitor (15.9" viewable area)
- STB® ViRGE™/GX 4MB, 3-D 64-Bit PCI Graphics
- 3.2GB 12ms Ultra ATA Hard Drive
- 12X min/24X max CD-ROM & 3.5" Diskette Drives
- APC Back-UPS® Pro™ 650 with PowerChute® Pro Power Management Software; \$25,000 Lifetime Equipment Protection from APC.
- Ensoniq® Wavetable Audio
- Altec™ Lansing ACS-41 Speakers
- TelePath® Fax Modem for Windows with x2™ Technology\*
- Mid-Tower Case
- 104™ Keyboard & Microsoft® IntelliMouse™
- MS® Windows® 95 & MS Office 97, Small Business Edition Plus Encarta® 97
- MMX™ Technology-Enhanced Software
- Gateway Gold™ Service & Support for Desktop PCs

\$2978

\*Maximum data transfer rate dependent on certain variables including particular modems with which you are communicating, telephone lines, communications software and communications protocols.

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## Can A Power Outage Kill Your Business?

The real problem with bad power is that you never know when they will strike. This lack of warning leaves network administrators and power customers with one more threat to their business, not to mention their peace of mind.

Research has shown that only 43 percent of businesses suffering a disaster ever recover sufficiently to resume business, according to the National Archives and Records Administration in Washington, D.C. Among businesses that do reopen, only 29 percent are still operating two years later. Even more ominous is the fact that 93 percent of businesses that lost their datacenter for 10 days or more had filed for bankruptcy within one year of the disaster. And 50 percent of businesses that found themselves without data management for the same time period filed for bankruptcy immediately.

Now more than ever disaster prevention and recovery plans are critical, and with the growing dependence of businesses on their computers and networks, power protection and management must be part of that plan.

For more information about how APC can help protect your network, call 888-289-2722, ext. 8181. For instant information, visit APC's PowerPage™ on the Web at <http://www.apcc.com>.

## Get Protected NOW!

Summer storms shower the worst luck on computer users.

Misfortune often comes in the form of lightning or a storm-related power surge or outage. But what can you do in the face of such awesome natural forces? Especially with only 24 hours in every day?

APC knows you haven't got time to waste, so the PowerPage™ offers several live interactive tools to ensure you get the power protection you need, when you need it. A quick three-step process will get you well on the way to summer-time peace of mind.

1. Check out the APC Weather pages, especially the weekly national lightning strike pattern page and the Tropical Storm Tracker.

2. If you're still not sure how susceptible you and your network are to bad power, take the APC "Are You At Risk?" quiz to determine exactly where you stand in relation to Mother Nature.

3. Once you've measured your susceptibility, a few mouse clicks will take you to the APC Dealer Locator so you can find the APC reseller nearest you.

You can point your browser right to any of these tools using the following direct URLs:

### Lightning Strike Map

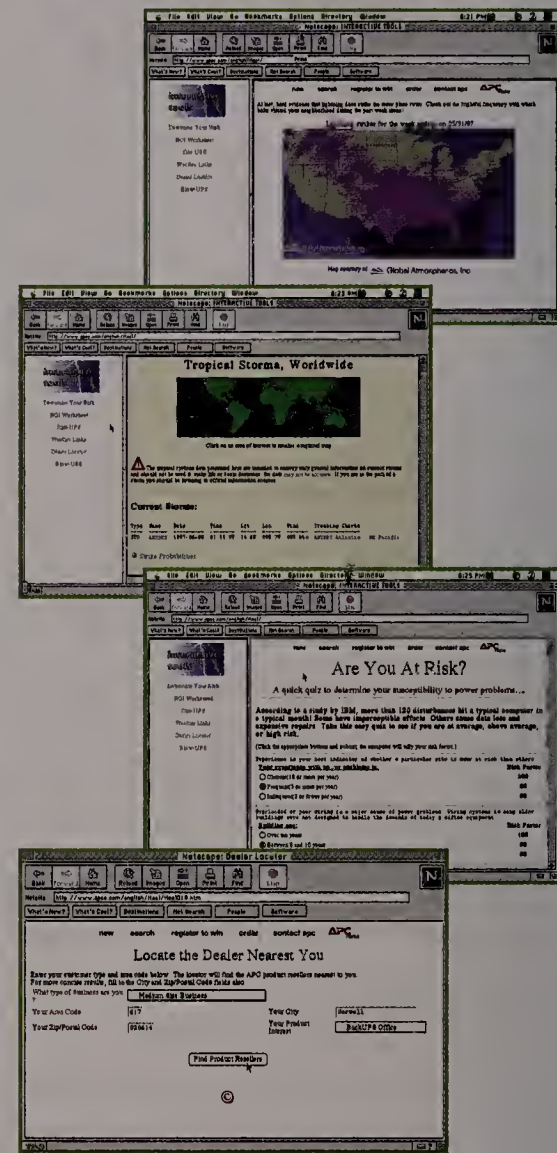
[www.apcc.com/english/itool/itool006.htm](http://www.apcc.com/english/itool/itool006.htm)

### Are You at Risk?

[www.apcc.com/english/itool/itool003.htm](http://www.apcc.com/english/itool/itool003.htm)

### APC Dealer Locator

[www.apcc.com/english/itool/itool19.htm](http://www.apcc.com/english/itool/itool19.htm)



## Why Wait for APC Currents?

In the fast-paced world of high technology, just keeping up is a difficult task. That's why we deliver APC Currents to your mailbox once per quarter. But often that quarterly update isn't quite timely enough. Keeping a network or even a home PC up-to-date is a constant struggle, so you need news about the latest technology and solutions as soon as it's available.

### NEW Web Edition

The NEW APC Currents Web Edition brings PowerNews™ right to your browser. Simply bookmark the direct URL (<http://www.apcc.com/english/powernews/currents>) and you'll have instant access to the latest news from APC.

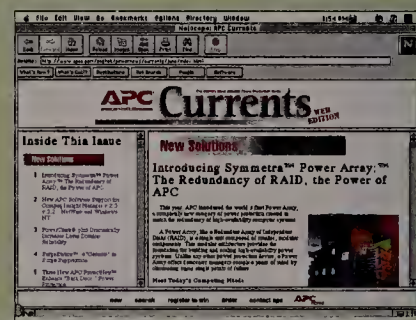
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- Customer Stories
- Library of support documents



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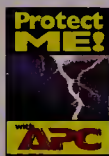
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# HP Pegs American Power Conversion for PowerWise Support



Hewlett-Packard Company and APC recently signed a contract that sets APC to provide ongoing warranty support for HP's installed base of HP PowerWise uninterruptible power supply (UPS) customers. Effective May 1, APC began providing UPS products and offering power-protection solutions for HP PowerWise customers' future UPS installations. HP will no longer produce, supply or support HP PowerWise products.

"HP PowerWise customers will be well-sup-

ported, thanks to APC's commitment to offer complete support to our global customer base," said Gary Whitman, marketing manager of HP's New Jersey Division. "APC has the technical expertise necessary to support HP PowerWise products and customers, and we are confident they will provide the quality of service our customers are accustomed to."

"HP recognizes the value-add that power protection brings to a customer's network," said Ed Bednarcik, general manager of APC's Network

Power Solutions Division. "APC is committed to continue providing the highest-quality UPS products and services to HP PowerWise customers. We are well-positioned to accomplish this due to APC's comprehensive understanding of customers' power-protection needs."

HP PowerWise UPS customers worldwide may contact APC for warranty service and technical support for their installed systems. In North America, call (888) 204-0173. Outside North America, call 353-91-702000, extension 2012 (English), extension 2013 (French and Spanish) and extension 2014 (German and Dutch).

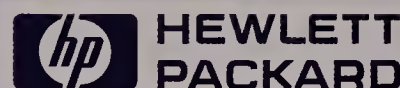
## HP to APC SKU Conversion Chart

HP SKU	Model	APC SKU
C4775B	Power Wise L600	SU700NET
C4776B	Power Wise L900	SU1000NET
C4275B	Power Wise 1000	SU1000NET
C5225B	Power Wise L1250	SU1400NET
C4276B	Power Wise 2100	SU2200NET
C4621A	Add-on battery for 1000	SU24XLBP
C4622A	Add-on battery for 2100	SU48XLBP
C4620A	10Base-T SNMP Interface	AP9605
C4692A	10Base-T & Thin-LAN SNMP Interface	n/a
C5232A	Rack Shelf for L600	SU700RMNET
C5233A	Rack Shelf for L900/L1250	SU1000RMNET / SU1400RMNET
C4631A	Rack Shelf for 1000/2100	SU1000RMNET / SU2200RMNET
C4624B	IBM OS/5 Monitoring Software	AP9002
C4626B	SCO Unix Monitoring Software	AP9004
C4627B	HP-UX Software	AP9004 / AP9005
C4628B	Windows NT Cable Kit	940-0020
C4629B	IBM AS/400 Cable Kit	940-0006
C4630B	Banyan VINES Cable Kit	940-0004



*"HP PowerWise customers will be well-supported, thanks to APC's commitment..."*

Gary Whitman, marketing manager  
HP's New Jersey Division



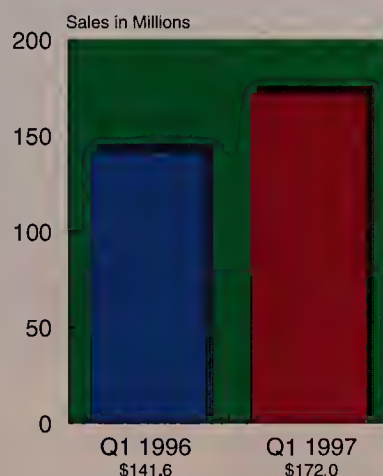
# APC Sales Continue To Rise in Q1 '97

APC recently announced sales results for the three months ended March 30, 1997. Sales for the first quarter of 1997 were \$172.0 million, up 21.5 percent from \$141.6 million for the first quarter of 1996.

"We are very pleased with the (growth) we continue to see in our business," explained Rodger B. Dowdell Jr., president and CEO. "The global business fundamentals that drive the uninterruptible power supply (UPS) industry remain favorable for APC's long-term success."

"The past three months have been a very exciting period for APC," Dowdell said. "Most notably during the quarter, we announced APC's first entry into the above 5kVA power protection market with the Symmetra™ Power Array™. We designed an innovative system to bring scalability and redundancy to the UPS industry," added Dowdell. "We focused on fulfilling the primary needs for power protection in the data-center customer set. By combining high availability power protection with remote manageability, predictive failure and proactive alerts, Symmetra is a complete solution for today's datacenter."

## APC Comparative Sales Q1 1996 to Q1 1997



APC sales continued to rise in the first quarter of 1997. For more information about investing in APCC stock, please call the APC investor relations department at 800-788-2208, ext. 2994

"In addition, APC continues to focus on building relationships with many leading technology vendors," continued Dowdell. During the quarter the Company began ProtectME!™ with APC marketing campaigns with Dell Computer Corporation and Quantex Microsystems, Inc., as well as a new sales and marketing relationship with Acer Sertek in Taiwan.

Finally, APC continued to be the recipient of worldwide recognition during the quarter. This included the *ComputerWorld* "Reseller Choice" award, the *Computer Shopper* "Best UPS" award for the Back-UPS Pro®, *PC Bulgaria's* "Editor's Choice," inclusion in *Dataquest's* list of product "Sizzlers+97" in India and, finally, for the sixth year in a row, APC was named "Best to Sell" by *The VAR* magazine in the UK.

For more information about APC financial performance, or to obtain an annual report, call 401-789-5735, ext. 2994 or E-mail [investorrelations@apcc.com](mailto:investorrelations@apcc.com). American Power Conversion Corp. stock is traded on the NASDAQ exchange under the symbol APCC.



## APC in Action



**Utility Power**

Irv Betch, Field Technician  
Constellation Energy Corporation  
Baltimore, MD

## "APC Products Solve Customers' Power Problems Once and for All."

"I'm an energy services technician for BGE, the gas and electric utility that serves Baltimore and most of Maryland. After our merger this spring with Washington DC-based PEPCO, our new company, Constellation Energy Corporation, will be the 9th largest utility in the country, with more than 1.8 million electric and 546,000 gas customers. I'm one of three BGE technicians for our entire service territory, responsible for resolving customers' power quality problems or other related concerns.

"The most important words when discussing power quality are 'sensitive electronic equipment' and at BGE, the most important words are 'customer education.' Our standard operating procedure begins with educating customers on the importance of protecting sensitive electronic equipment and ends with providing the solution most appropriate to their needs.

In most cases, we've found APC products are the optimum solution to protect file servers, workstations and telephone systems. They solve cus-

tomers' power quality problems once and for all, which makes their jobs - and ours - easier.

"The cost of an APC product is small compared to the cost of replacing or repairing sensitive equipment. "Once customers realize the importance of proper protection for sensitive equipment, our relationship becomes more interactive: a partnership focused not only on solving today's problem but also on prevention of others that may arise down the road. We may install monitoring equipment on site to pinpoint events to assist us in identifying - and solving - the problem.

"In the three years that I've been part of the Energy Sales and Services department, I've never had a customer displeased with the APC products we've recommended. The bonus? These satisfied customers request more APC products for their homes and businesses."

Utility companies interested in co-operative marketing opportunities, please E-mail [utility@apcc.com](mailto:utility@apcc.com)

## "With APC Smart-UPS,<sup>®</sup> We Know Our Data and Hardware are Well Protected."

"Light Matters, Inc. is a special effects/computer graphics company, currently located in several adjoining apartments. We are a very rapidly growing home-based business. We're currently utilizing three servers and 25 Silicon Graphics workstations - to create visual affects for the film industry. Most recently we've worked on this summer's blockbuster, Volcano, The Nutty Professor, and are currently working on Titanic and the X-Files movie. You could say we take a sort of guerrilla approach to visual affects, because our overhead is low for the industry, but the work that is produced here is very high-end work. We have 6 animators working at this location.

"We created 65 shots for Volcano, and 36 of these included adding lava to the scenes. We did over a third of the lava in the movie - and of these, 21 were 100% computer-generated. Just as a point of interest, the other kind of lava actually uses a food additive called methycil which is also used in fast-food milk shakes! In the film Volcano they used roughly 750 gallons of methycil - died fluorescent orange and red.

"Despite our appearances, we are essentially an apartment-based business and because we have so many machines running, we're just about at capacity in terms of available AC power to the apartment. On three occasions, we lost power during the production of Volcano, and the UPSs allowed us time to soft-shutdown the machines. The UPSs protected us from hard drive head crashes, saving us hours of recreating lost images. APC was the most reliable UPS available, and offered us the most cost-effective way to ensure data integrity.



**Hollywood**

Colin Strause  
3D Supervisor  
Light Matters, Inc.

"We're using 10 APC Smart-UPS 1400's - each protecting three workstations. It instilled confidence while working knowing that our data and hardware was well protected."

## APC in the Movies



"I'm ready for my closeup Mr. De Mille..."

**FREE T-shirt  
If You Spot an APC  
Product on Screen!**

Fax your APC product sighting to: APC in the Movies, 401-788-2739. E-mail [hollywood@apcc.com](mailto:hollywood@apcc.com). Or visit <http://www.apcc.com/english/promo/promo007.htm> Don't forget to include your mailing address and T-shirt size!



# "With the APC Back-UPS® in Place the Clock Will Continue to Work Throughout a Power Failure; Even the Chimes Continue to Strike Every Fifteen Minutes."

*"In 1996, the town of Hathersage suffered over 30 power interruptions. Every time it happened I had to climb 100 steps to restart the church clock."*

*Peter Smith, Parish Clock Winder,  
Hathersage Parish, England*



"St Michael's Church in Hathersage, Derbyshire, is a quaint 14th Century parish church. Its location, high in the Derbyshire Peak District, makes St Michael's the natural focal point of the village. The Tower clock can be seen at the top of the church spire and heard to chime the Cambridge Chimes every 15 minutes, every day of the year.

"The clock, donated to the church in 1879, is still in operation today. In those early days the official parish clock winder had to climb the 100 steps to the top of the tower every two days to wind the clock and the chimes. In 1969, it was hoped that the conversion to an electrical mechanism would make a tremendous difference, putting an end to the climbing and winding endured by the official clock winder. It didn't.

"The geographical locality of Hathersage means it is particularly susceptible to power failures. The overland cables and inclement weather often combine to knock-out the electricity supply. In 1996 alone, the area suffered 30 power failures in 12 months!! The design of the clock meant that every time the power failed the clock stopped and wouldn't restart on its own.

This meant another journey up the steps for the clock winder.

"The clock mechanism is designed to work at the same cycle rate as utility power. This makes it a very accurate time piece but also means when the power fails the clock won't restart.

"My family has been the official clock winders for three generations. My grandfather, father and myself have all climbed the narrow steps of the clock tower to wind it up. In 1969 the mechanism was converted to electric and I hoped it would be an end to the regular trips up the tower.

"My son, a software engineer, recommended the use of an APC Back-UPS to protect the clock mechanism when the power fails. The clock draws a comparatively small amount of power so the UPS keeps the clock running through the majority of our power cuts.

"With the APC Back-UPS in place the clock will continue to work throughout a power failure; even the chimes continue to strike every 15 minutes. In the past I would find myself resetting the clock almost once a week, now I only have to go up twice a year when the time changes in summer and winter."

For more information about Back-UPS call your local APC reseller, fax the reply card at the back of the magazine to our resource center for free literature, or call your local office (see numbers at bottom of page). For instant information, visit APC's PowerPage™ on the Web at <http://www.apcc.com>



**Home and Office**



*Peter Smith, Parish Clock Winder  
St Michael's Church  
Hathersage Parish  
Derbyshire, England*

Asia Pacific HQ: +61-2-9955-9366 (Australia)  
Ireland: +35-391-702000

Japan: +81-3-3-798-3888

China +86-10-261-5868  
Korea: +82-2-501-6492

France: +33-1-64-62-59-00  
Latin America: +1-401-789-5735

Germany: +49-89-958-23-5  
Singapore: +65-337-4462

India: +91-44-434-1784  
UK: +44-753-511022



## FREE Mug! Take the PowerPage™ Trivia Challenge:

**Your Back-UPS Pro® Knowledge Could Win You a Free Sparky Coffee Mug!**

Besides reliability, name TWO of the key features of the award-winning APC Back-UPS Pro® or PowerChute Pro® software.

Entry Instructions: Visit [www.apcc.com/english/itool/itool008.htm](http://www.apcc.com/english/itool/itool008.htm) any time after July 31st, complete the form, and if you're one of the first 50 people to type a correct answer in the "Comments and/or Promotional Password" field, you'll win the free mug (limit one per person/address).

That's it. Good Luck!



# "I consider the APC Back-UPS® Office™ to be an indispensable tool to get through school successfully."

"I attend Cornell University as a second semester freshman, majoring in animal science. I have an IBM Aptiva, and this computer is extremely important to me, both for access to the Internet (I contact my family via e-mail), as well as to communicate with professors.

"I have an average of three to four papers due per week, and I use the Internet to get help and information from other students and professors at other universities. My computer is critical to my work; losing access to it because of bad power is unacceptable.

"Our dorms were built at the turn of the century, and the wiring is not equipped to handle all the electronic devices that students use today - stereos, refrigerators and computers. In my first semester, we had three power outages, and I'm

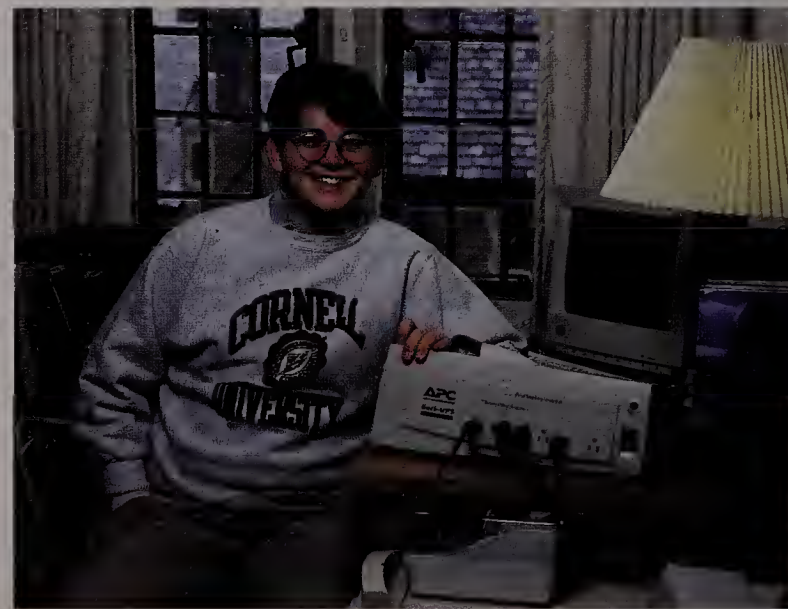
sure we're due for more.

"The first time a power outage occurred, I was typing a lengthy biology term paper, and it completely disappeared. Shortly after I got my APC Back-UPS Office, the power flickered and went out, but this time I was able to save my work and shut down. If you spend three or four thousand dollars on a computer, you should definitely spend a couple of hundred more to protect both the data and the hardware. I consider the APC Back-UPS Office to be an indispensable tool to get through school successfully."

## APC Trade Show Calendar

DATE	REGION	SHOW/LOCATION	BOOTH #
<b>National Tradeshows:</b>			
July 9-11		Comdex Canada - Toronto	#425
Aug 13-14		Internet EXPO - Boston	#2818
Sept 16-18		IT Forum - New York City	#1770
<b>Regional Tradeshows:</b>			
July 9	South	Netware User International-Philadelphia, PA	TBA
Aug 19-20	South	Computer and Technology Showcase-Jackson, MS	TBA
Sept 3-4	Midwest	NetCom-Minneapolis, MN	#214
Sept 17-18	South	NetCom-Charlotte, NC	#901
Sept 30	North	Netware User International-Boston, MA	TBA
Oct 1-2	South	ITEC-Kansas City, MO	TBA
Oct 7-8	West	ITEC-Portland, OR	TBA
Oct 8-9	South	Computer and Technology Showcase-Oklahoma City, OK	TBA
Oct 15-16	West	ITEC-Phoenix, AZ	TBA
Oct 15-16	South	ITEC-Raleigh, NC	TBA
Oct 29-30	South	NetCom-Nashville, TN	#301

Need tickets? Visit [www.apcc.com/english/about/about008.htm](http://www.apcc.com/english/about/about008.htm)



## Education

Severence MacLaughlin  
Student, Cornell University  
Ithaca, NY





Mail-In  
Offer

## FREE SmartSlot™ Interface Expander from APC!

With the Purchase of a  
Smart-UPS® 1400 or Smart-UPS® 1400RM  
between June 1 and August 30.

Just send this completed certificate along with a UPC  
symbol from an APC SU1400 or SU1400RM box and the  
original purchase receipt dated between 6/1/97 and 8/30/97,  
and get a FREE SmartSlot™ Interface Expander from APC!

**\$149  
Value!**

**APC**  
888-289-2722  
ext. 8181

Mail-In  
Offer

**\$30 REBATE**

With the Purchase of a Back-UPS® Office™  
between April 1 and August 30.

Just send this completed certificate along with a UPC symbol from an APC  
Back-UPS® Office™ box and the original  
store receipt with the Back-UPS Office  
circled, and get a \$30 rebate!

**APC**  
888-289-2722  
ext. 8181

Mail-In  
Offer

**\$30 REBATE**

With the Purchase of a Back-UPS® Office™  
between April 1 and August 30.

Just send this completed certificate along with a UPC symbol from an APC  
Back-UPS® Office™ box and the original  
store receipt with the Back-UPS Office  
circled, and get a \$30 rebate!

**APC**  
888-289-2722  
ext. 8181

**Special Offer! \$30 Back-UPS Office Rebate**



Download More Coupons at [www.apcc.com/english/promo/promo025.htm](http://www.apcc.com/english/promo/promo025.htm)

# FREE SmartSlot™ Interface Expander from APC!

☐ **Yes!** I'm interested in receiving a FREE SmartSlot Interface Expander. I am enclosing the UPC symbol and original Smart-UPS receipt.

☐ **No,** I am not interested at this time, but please add me to your quarterly mailing list.



Name: \_\_\_\_\_

Company/Title: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_

# of servers on site? \_\_\_\_\_

Brand of UPS used? \_\_\_\_\_

*We regret we cannot fulfill incomplete requests.*

Please fill out completely and mail to:

Dept. E2-CR  
American Power Conversion  
132 Fairgrounds Road  
P.O. Box 278  
West Kingston, RI 02892

1. Offer good in US & Canada only.
2. Purchase receipts must be dated between 6/1/97 and 8/30/97.
3. Requests must be received by 9/15/97.
4. Customers must send in: Original UPC labels printed on APC Smart-UPS packaging, Original purchase receipt, Completed coupon.
5. Only original receipts accepted.
6. Void where prohibited or restricted by law.
7. Proof of mailing does not constitute proof of delivery. APC is not responsible for lost, late, illegible or incomplete orders or postage-due, damaged or separated mail.
8. Not eligible: APC employees, agencies or distributors.

9. Fraudulent submission of multiple requests could result in federal prosecution under the U.S. Mail Fraud Statutes (18 USC, Section 1341 and 1342).
  10. Not valid with any other offer.
  11. Allow 6-8 weeks for delivery.
  12. Offer expires 9/15/97.
  13. APC Reserves the right to rescind promotion at any time.
- © 1997 American Power Conversion. All Rights Reserved. All trademarks are property of their owners.

**Just send this completed certificate along with a UPC symbol from an APC Back-UPS Office box and the original dated store receipt with the Back-UPS Office circled for your \$30 mail in rebate!**

**Mail Coupon to:** Back-UPS® Office™ Rebate  
P.O. Box 52930  
Dept. #E2-CR  
Phoenix, AZ 85072-2930

Name: \_\_\_\_\_

Company/Title: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ Ctry: \_\_\_\_\_

Phone: \_\_\_\_\_ E-mail: \_\_\_\_\_

#### Additional Terms and Conditions:

1. Offer good in US & Canada only. Rebate in US Dollars only.
2. Store receipts must be dated between April 1, 1997 and August 30, 1997.
3. Requests must be received by September 15, 1997.
4. Customers must send in: - Original UPC labels printed on APC Back-UPS Office pack aging, - Original store receipt, - Completed coupon.
5. Only original receipts accepted. Customer can request that their receipt be returned by including a note and a self-addressed stamped envelope with their rebate request.
6. Void where prohibited or restricted by law.
7. Limit five (5) rebates per customer.

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8. Proof of mailing does not constitute proof of delivery. APC is not responsible for lost, late, illegible or incomplete orders or postage-due, damaged or separated mail.
9. Not eligible: APC employees, agencies, distributors or resellers.
10. Fraudulent submission of multiple requests could result in federal prosecution under the U.S. Mail Fraud Statutes (18 USC, Section 1341 and 1342).
11. Not valid with any other offer.
12. Allow 6-8 weeks for delivery.
13. Offer expires August 30, 1997.
14. Offer only good on Back-UPS Office (UPC code 7 31304 00588 9).
15. APC Reserves the right to rescind promotion at any time.

**Just send this completed certificate along with a UPC symbol from an APC Back-UPS Office box and the original dated store receipt with the Back-UPS Office circled for your \$30 mail in rebate!**

**Mail Coupon to:** Back-UPS® Office™ Rebate  
P.O. Box 52930  
Dept. #E2-CR  
Phoenix, AZ 85072-2930

Name: \_\_\_\_\_

Company/Title: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ Ctry: \_\_\_\_\_

Phone: \_\_\_\_\_ E-mail: \_\_\_\_\_

#### Additional Terms and Conditions:

1. Offer good in US & Canada only. Rebate in US Dollars only.
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14. Offer only good on Back-UPS Office (UPC code 7 31304 00588 9).
15. APC Reserves the right to rescind promotion at any time.



# The APC Reliability Challenge: Oldest Active UPS Wins Trip!

More than ten years after their first UPS was built, APC has issued this challenge: Show us the oldest unit in active service, and we'll show you a great time in Block Island.

We're going to reward the customer who has believed in our reliability as much as we do here at APC, where we still have plenty of these old APC workhorses protecting our workstations.

At APC we believe Reliability is Everything, and we know that while we may have developed technology that made our original units obsolete, they still provide the same level of power protection they did on the day they rolled off the line. They may have a new set of batteries, but these units were built to last.

APC protection is designed to be invisible, so take a close look at the photo (or your old sales receipts) and see if you've got a potential winner protecting a server or workstation.

If that unit happens to be the oldest in active service, you'll win an all expenses paid\* weekend for two on Block Island, RI, one of the Northeast's finest vacation spots!

## The trip includes:

- Two round-trip plane tickets to Providence, RI from anywhere in the continental US\*
- A rental car to take you where you need to go.
- A tour of APC's main manufacturing facility.
- After the tour, we'll take you to the Smart-UPS assembly line, where we'll help you build your very own Smart-UPS to replace your winning UPS.
- We'll retire your old UPS to a permanent space in the lobby of our headquarters.
- A ferry ride from historic Narragansett Bay to beautiful Block Island
- Three nights accommodation at The Atlantic Inn, hosted by Brad and Anne Marthens, Keepers of the Inn.
- Complimentary mountain bike rental, so you can easily tour the island.

*\*See contest rules on other side of form*



1986, and Still running: 1, 2, 3.  
1987, and Still running: 5, 6, 7.  
1988, and Still running: 12.  
1989, and Still running: 4.  
1990, and Still running: 9, 10.  
1992, and Still running: 13.  
1993, and Still running: 11.  
1994, and Still running: 8.



*Build your own Smart-UPS*

## To Enter Your APC UPS, Just Complete and Mail the Form on the Back of This Page



# Free Weekend on Block Island!



The historic Atlantic Inn is hosted by Innkeepers Brad and Anne Marthens.

Located on beautiful Block Island, just off the coast of Rhode Island, the Inn boasts spectacular views.



All you have to do is complete the form below, snap a picture of your APC unit, put them both in an envelope and send it to:

"APC Reliability Challenge"  
c/o APC Currents  
132 Fairgrounds Road  
West Kingston, RI 02852

We'll check your serial number against our manufacturing records, and if you own the oldest APC UPS in active service, you'll win the weekend on Block Island!

Your Name .....  
Address.....  
.....  
City.....  
State.....Zip .....  
Country .....  
Telephone .....  
E-mail .....  
Serial Number (from the back of the unit) .....  
.....

**Attach your UPS Photo Here**



Visit our PowerPage™ at [www.apcc.com/english/powernews/vacation](http://www.apcc.com/english/powernews/vacation) for more entry forms.

The Fine Print: Contest entries must be received by August 15th. Winner announced September 1. Enter as many APC UPS units as you'd like. Each entry must include a photo and complete entry form. Trip dates subject to hotel and airline availability. APC employees not eligible to win. Winners will be profiled in an upcoming issue of Currents. Expenses limited to \$200 per day. APC will pay for round-trip airfare (departure points subject to airline exclusions), three nights accommodation, four days car rental, one trip via ferry to and from Block Island.



Fold, Then Tape Closed



NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 36 WEST KINGSTON, RI

POSTAGE WILL BE PAID BY ADDRESSEE



AMERICAN POWER CONVERSION

DEPT. E2-CR  
132 FAIRGROUNDS ROAD  
PO BOX 278  
WEST KINGSTON RI 02892-9906



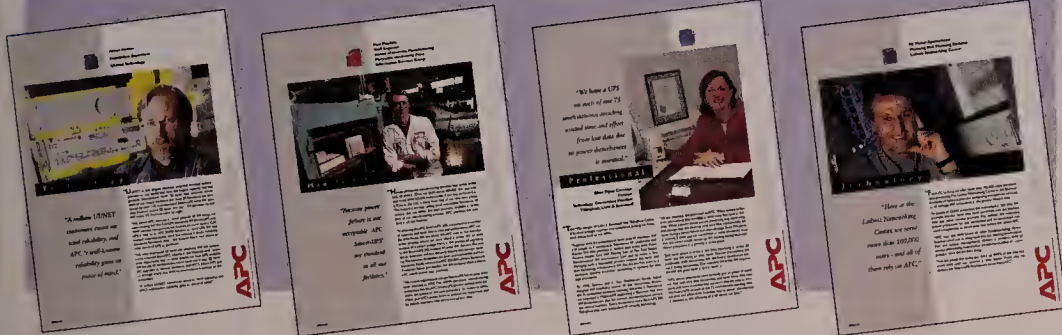
APC in Action Flyers: Customers Tell Their Tales of Power

Order flyers now: 888-289-2722, ext. 8181 or use the form on the back. No limit on amount ordered.

Part#	Flyers
DSN-0128	America II Corp
DSN-0129	Anahuac University
DSN-0180	Bell Advanced Comm
DSN-0182	Centre REinsurance
DSN-0184	GeorgiaNet Kiosks

DSN-0156	Jet Propulsion Labs
DSN-0155	Harley Davidson
DSN-0137	Cisco
DSN-0188	UUNet
DSN-0188	wwwPassport
DSN-0140	Wachovia
DSN-0141	Willingham, Licht & Semonoff
DSN-0145	MetLife
DSN-0147	Honda
DSN-0148	Softbank

DSN-0135	Exec PC
DSN-0144	Maryview Medical Center
DSN-0138	Entex Corp
DSN-0148	Ms Janice Duran
DSN-0159	Bay Networks
DSN-0162	Liebniz Corp.
DSN-0158	Bombay Company
DSN-0186	Cabletron



Get info faxed right to your desk!

Document Description	Doc #
Smart-UPS 3G	1600
Back-UPS Pro	1400
Back-UPS	1200
PowerChute plus	2000
List Pricing	2400
UPS Sizing Guide	2300
Smart-UPS XL	1620
Matrix	1700
Smart-UPS vs. Back-UPS	1011
UPS Accessories	2100

Call and follow  
recorded  
instructions to  
receive a  
complete  
catalog of lit-  
erature avail-  
able by fax.



FREE Posters Make a Point!



1. Clear Surge    11. Crash LAN    10. ProtectME!    7. Lightning

Order Posters Now!

APC offers FREE 24" by 36" posters: Please enter the Part Number on other side of this form.

Poster	Part#
1. Clear Surge	996-0128
2. Back-UPS	996-0116
3. Back-UPS Pro	996-0329
4. Smart-UPS	996-0397
5. Smart-UPS RM	996-0629-A
9. Plug N Play	996-0595
7. Lightning	996-0129
9. Bulletproof	996-0413
9. Geek & girl	996-0406
10. Protect ME!	996-0668-A
11. Crash LAN	996-0347
12. Hairdryer	996-0407



# APC Currents Fax Order Form



You can always find the information you need on the APC PowerPage™ ...

**<http://www.apcc.com>**

Check one or more items of interest below and fax your completed order form to 401-789-3710 For immediate response, call 888-289-2722, ext.8181

## Special Limited Time Offers

(Phone and Address Correction Required)

☐ Address Correction?

### FREE STUFF!

Name .....

Reseller ID# .....

Title .....

Company name .....

Dept. / Mail Stop .....

Address .....

City .....

State, Zip Code .....

Country .....

Phone .....

Fax .....

E-mail address .....

FREE Poster (Limit two per customer)/ APC in Action brochure (Unlimited amounts) See examples on back :

1.Part # .....

2.Part # .....

3.Part # .....

4.Part # .....

What brand(s) of UPSs and surge suppressors do you use?

What brand(s) of servers do you use?

How many UPSs do you buy per month? .....

How many servers do you have installed? .....

How many servers do you purchase per month? .....

Is this your first contact with APC? ☐ Yes ☐ No

Complete the info at the left and check the free items below that interest you:

☐ **YES!** Send me a FREE Solutions 60-page Power Protection Handbook detailing the latest power protection information from from APC.

☐ **YES!** I'd like a FREE APC in Action brochure or poster. I have entered the part number at left.

☐ **YES!** I'd like a FREE Subscription to the PowerNews™ E-mail news service. I have included my E-mail address at left.

☐ **YES!** Send a FREE Symmetra information video.

☐ **YES!** I'd like to learn more about APC's products and services.

Please send me FREE, detailed information about these products:

☐ Back-UPS/Pro ☐ Back-UPS Office

☐ Smart-UPS ☐ Matrix-UPS

☐ Line-R ☐ SurgeArrest

☐ PowerChute ☐ PowerManager

☐ PowerNet ☐ ProtectNet

☐ NetShelter ☐ PowerAudit

☐ MasterSwitch ☐ Symmetra

☐ PowerView ☐ Trade-UPS

This is for ☐ home use ☐ business use

## Happy Customers Get FREE APC T-Shirts!

8/97

If you've had an interesting experience/application with APC's products, fill out this card and send it in. If we use your story, you get a FREE T-Shirt. Please complete all contact information, including phone number. APC model number involved: \_\_\_\_\_

Can we print your story in our "Letters" section? ☐ Yes ☐ No





# Total Power Protection in Action

## APC's Total Power Protection:

- Maximizes productivity
- Minimizes support costs
- Increases uptime
- Protects valuable equipment and data
- Provides peace of mind

APC power protection keeps data flowing safely, whether it's on a home PC or a WAN. With APC you'll run through any power event and shield AC lines, phone lines and datalines from power problems. Use the checklist below and the color application icons to match your systems to APC solutions.

### Protect the Path and Protect the Equipment

#### Home and Office

- ☐ AC Lines
- ☐ Phone Lines
- ☐ Datalines
- ☐ Phone Systems
- ☐ Fax Machines
- ☐ Electronic Registers
- ☐ Peripherals
- ☐ PCs

#### Peer-to-Peer Networks

- ☐ AC Lines
- ☐ Phone Lines
- ☐ Datalines
- ☐ Install Interface
- ☐ Peripherals (printers, modems, etc.)
- ☐ Workstations

#### Client-Server Networks

- ☐ AC Lines
- ☐ Phone Lines
- ☐ Datalines
- ☐ Install Interface
- ☐ Peripherals
- ☐ Client Workstation
- ☐ Dedicated Servers

#### Enterprise-Wide Networks

- ☐ AC Lines
- ☐ Datalines
- ☐ Phone Lines
- ☐ Peripherals
- ☐ Install Interface
- ☐ Servers
- ☐ Web Servers
- ☐ Minicomputers and DASD Boxes
- ☐ Workgroups
- ☐ Smart Hubs
- ☐ Routers

### SurgeArrest® List

SurgeArrest Notebook	\$29.95
Personal SurgeArrest 3 Outlet	\$24.95
Personal SurgeArrest 3 Outlet with Tel	\$34.95
Personal SurgeArrest 3 Outlet with Coax	\$34.95
Personal SurgeArrest 7 Outlet	\$29.95
Personal SurgeArrest 7 Outlet with Tel	\$39.95
Professional SurgeArrest 7 Outlet	\$49.95
Professional SurgeArrest 7 Outlet with Tel	\$59.95
Professional SurgeArrest 7 Outlet with Coax	\$39.95
Network SurgeArrest 3 Outlet	\$39.95
Network SurgeArrest 3 Outlet with Tel	\$69.95
Network SurgeArrest 7 Outlet	\$59.95
Network SurgeArrest 7 Outlet with Tel	\$89.95

### ProtectNet® Family List

Data line surge suppressors, starting at:	\$34.95
---	---------

### PowerManager® List

PowerManager	\$119.99
PowerManager with Tel	\$134.99

### Line-R® List

Line-R 600	\$179
Line-R 1250	\$269

### Back-UPS® List

Back-UPS 200	\$119
Back-UPS 280	\$139
Back-UPS 400	\$199
Back-UPS 450	\$254
Back-UPS 600	\$359

### Back-UPS® Office™ List

Back-UPS Office	\$199.99
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### Back-UPS® Pro List

Back-UPS Pro 280 PNP	\$199
Back-UPS Pro 420 PNP	\$339
Back-UPS Pro 650 PNP	\$419
Back-UPS Pro 1000	\$589
Back-UPS Pro 1400	\$759

### Smart-UPS® List

Smart-UPS 250	\$299
Smart-UPS 400	\$399
Smart-UPS 420	\$379
Smart-UPS 450	\$399
Smart-UPS 620	\$459
Smart-UPS 700	\$499
Smart-UPS 1000	\$699
Smart-UPS 1400	\$879
Smart-UPS 2200	\$1429
Smart-UPS 3000	\$2599
Smart-UPS 700RM	\$649
Smart-UPS 1000RM	\$829
Smart-UPS 1400RM	\$1079
Smart-UPS 2200RM 3U	\$1849
Smart-UPS 3000RM 3U	\$2679
Smart-UPS 700XL	\$799
Smart-UPS 1000XL	\$879
700XL/1000XL Battery Pack	\$399
Smart-UPS 2200XL	\$1699
2200XL Battery Pack	\$499
Smart-UPS 1400XLT	\$1999
Smart-UPS 2200XLT	\$2299
Smart-UPS 3000T	\$3149
Smart-UPS 2200RMXL	\$2359
Smart-UPS 2200RMXL Battery Pack	\$799

### Matrix-UPS™ List

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Matrix-UPS 5000	\$5299
SmartCell™	\$599
SmartCell XR	\$1399

### Symmetra™ List

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Symmetra MasterFrame	Please Call for Info

### NetShelter™ List

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NetShelter expansion rack	\$1699
Compaq Mounting Rails	\$149
HP NetServer Mounting Rail Kit	\$49
Hardware Kit	\$39
Blanking Panel Kit	\$79
Standard Duty Fixed Shelf (to 110 lbs.)	\$99
Heavy Duty Fixed Shelf (to 220 lbs.)	\$129
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### PowerChute® Family List

Software solutions, starting at:	\$69
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### PowerNet® SNMP Family List

<b>PowerNet SNMP Adapter for:</b>	
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Token Ring (SmartSlot™)	\$699
<b>PowerNet SNMP Agent for:</b>	
OS/2	\$169
UNIX	\$219
<b>PowerNet SNMP Manager for:</b>	
Novell ManageWise	\$199
HP OpenView for Windows	\$199
HP OpenView/SunNet Manager/Cabletron Spectrum/IBM NetView on UNIX	\$499

### UPS Accessories List

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PowerView™	\$249
SmartSlot™ UPS interface Expander	\$149
SmartSlot Measure-UPS II (Temp.)	\$149
SmartSlot Measure-UPS II (Temp.&Humid.)	\$199
SmartSlot Expansion Chassis	\$75
SmartSlot Call-UPS™ II	\$159
SmartSlot Relay I/O Module	\$179
Control-UPS/400™	\$399
Measure-UPS Switch Kit	\$99

### MasterSwitch™ List

MasterSwitch	\$699
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### Services List

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On Site Service	Please Call for Info
Trade-UPS	Please Call for Info
Warranty Extension	Please Call for Info
Battery Replacement	Please Call for Info

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*Erik Ubels  
IT Manager  
Deloitte & Touche*



"Deloitte & Touche Tohmatsu International, is one of the world's 'Big Six' accounting, tax and management consulting firms. We have 800 offices in 125 countries and employ approximately 60,000 people. That includes 60 offices and about 3,000 employees in the Netherlands alone. The Amsterdam office is responsible for planning the IT strategy for the entire European office network as well as the implementation of IT systems at the Dutch offices.

"In the past three years, internal automation at Deloitte & Touche has been entirely dominated by standardization, with far-reaching consequences.

"All computer rooms at Deloitte & Touche have a two-metre high computer cabinet. All these cabinets, however, contain at least one component supplied by a single manufacturer: APC provides the UPS (uninterruptible power supply) systems that protect our computer rooms against power failures.

"APC has an excellent reputation. We've been using their products since 1986 and it has always been our policy to stick with a product if we're satisfied with it. APC's UPS devices continue to provide optimum protection for the nerve center of our computer system. We have integrated them with our Compaq equipment. Loss of data as a result of a power failure would be disastrous for a company like ours. That is why we only install equipment we can rely on 100%.

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# Local Networks

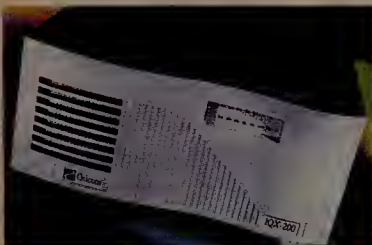
Covering: LAN Hubs, Switches, and Management • Operating Systems • Servers

## Briefs

■ **3Com Corp.** last week announced a PC card designed to ease access from notebook computers to corporate **token-ring LANs**. The TokenLink Velocity PC Card is aimed at end users working on corporate campuses or from remote offices in a number of desktop environments, including Windows 95, 3.1 and NT as well as OS/2. Card features include a Configurable Auto Ring Speed Detect option, which helps the card detect and adjust to the network ring speed. The card costs \$340.

© 3Com: (408) 764-5000

■ **Osicom Technologies, Inc.** last week rolled out a **remote access server** armed with Fast Ethernet and FDDI links to help eliminate LAN bottlenecks and provide direct backbone connections. The IQX-200, which supports as many as



168 dial-in ports, is targeted for corporate enterprise network customers and Internet service providers.

Pricing for the IQX-200 starts at \$3,050. The product will ship in August.

© Osicom: (888) 674-2668

■ **RadioLAN, Inc.** last week rolled out a **PC card version** of its **10M bit/sec wireless LAN** for mobile laptop users. The company also unveiled a radio transceiver unit — 40% smaller than the existing desktop unit — that mounts to the back of the laptop computer. Typically, wireless LANs operate at speeds in the 2M bit/sec range.

The 10BaseRadio PC Card Wireless Interface Node costs \$449.

© RadioLAN: (408) 524-2600

## In-Site

# Compaq cleans up its directory mess

Computer maker's IT department uniting LAN and electronic messaging directories.

By Christine Burns  
Austin, Texas

When Zoomit Corp. CEO Kim Cameron last year started preaching his message about how metadirectory technology could help unite disparate directories across corporate LAN and e-mail systems, Compaq Computer Corp. was ripe for conversion.

Running too many directories was costing the Houston-based computer manufacturer too much money, said Larry Ketchersid, director of enterprise computing in Compaq's information management department. Any new directory strategy had to include centralized management of user accounts as well as the option to parcel out administration of individual directory systems to different net managers.

Since 1986, the hardware manufacturer has racked up more than 30,000 entries stored

in Banyan Systems, Inc., Microsoft Corp., Lotus Development Corp. and other Simple Mail Transfer Protocol-based mail directories. Duplicate directory administration efforts existed because each directory required different personnel and specific

*"LDAP is great for moving directories forward, but it does nothing for integrating my legacy directory services."*

Larry Ketchersid, director of enterprise computing, Compaq's information management department.

tools. End users had as many as six different messaging accounts because of the lack of directory synchronization.

Compaq last year allocated upwards of \$2 million to tackle directory integration at the same

time the company began moving from Banyan's Intelligent Messaging to Microsoft's Exchange mail package.

Despite the Lightweight Directory Access Protocol's growing popularity, Compaq decided not to build its own LDAP-based tool to extract data from individual directories and compile it into a common repository. One reason for this was that Compaq's legacy directory services do not support LDAP.

Instead, Compaq turned to Zoomit's Via metadirectory product. Via, which started shipping last fall, comprises agent software that taps into different directory name spaces and joins that information in a single database. In theory, the joins give end users a single logon to all of a company's directories.

Compaq planned to first unite its NT, Exchange and Banyan directories. Ketchersid hoped this effort would help accelerate Compaq's migration to Exchange by allowing administrators to add, delete and move end users to all the messaging and operating systems from a single screen.

Compaq planned to add Notes and SMTP mail directory entries at a later date, as well synchronize more than 15,000 end-user lists that existed company-wide.

While the Via software fit Compaq's needs, the company had to get its core directory database in order before it could deploy any metadirectory.

But Zoomit's offering re-

Go to online for:

● Last week's story on the growing importance of directories

● Vendor information on metadirectory offerings

NetworkWorld  
*Fusion*  
www.nwfusion.com

quires a common end-user ID across all directories. The closest thing Ketchersid had resided in the human resources' SAP AG database in the form of a unique Compaq employee ID. But since there was no common directory attribute that corresponded to this Compaq ID, one had to be inserted in each directory and the IDs needed to be consistent with the directories' employee namingscheme.

This problem evolved into a huge organizational hassle rather than a technical issue, Ketchersid said. "We had to first clean up all of these legacy systems before we could go and join them together," he said.

Ketchersid's crew has spent the past eight months doing the directory database cleanup and forging ahead with the Exchange migration. Unfortunately, he said, the effort depleted the IT group of funds needed to put Via into production.

Despite the hassle, Ketchersid has not soured on the metadirectory concept and still plans to go into production with Via later this fall. "This is something that people are going to need to make all these services work together in their networks," he said. "They just have to be aware of the huge amount of work that needs to take place on the front end." ■

## Packet Engines revs up 'Big Switch'

By Jodi Cohen  
Spokane, Wash.

Start-up Packet Engines, Inc. is about to make a switch, in two senses of the word.

The Gigabit Ethernet vendor — which has focused exclusively on full-duplex repeaters — last week revealed plans to *Network World* that it will bolster its product portfolio to include a 1G bit/sec Ethernet switch.

"We realize that both types of devices have a place in the network," said Bernard Daines, president and CEO of Packet Engines. "Customers will need the repeater products early on, followed by high-end enterprise switches."

The company's Big Switch, as it is known internally, is a 15-slot

chassis, 12 slots of which can be used for interface modules. The remaining slots are reserved for redundant Reduced Instruction Set Computing processor modules and a net management module.

The switch can support as many as 240 Fast Ethernet ports and 24 Gigabit Ethernet links, with FDDI, ATM and frame relay interfaces planned for the future. The device boasts a backplane capacity of 56G bit/sec and provides full Layer 3 routing at wire speed, according to Daines.

"We're talking about conventional routing here, not those 'route once, switch many' schemes," he said. Daines pointed out that the routing functions are done in hardware



Daines' Packet Engines is moving full steam ahead with a Gigabit Ethernet switch.

in order to achieve good performance.

Customers can use the Big Switch to aggregate Fast Ethernet connections within the wiring closet or the data center. Also, customers may use the switch to provide speedy server links.

Analysts said expanding its product portfolio to include switches is a good business move for Packet Engines.

"There is a market for repeaters initially, but going forward most customers will prefer a switching hub," said Esmerelda Silva, an analyst at International Data Corp., a market research firm in Framingham, Mass.

Pricing for the switch has not yet been set. Packet Engines plans to ship the device by year-end.

© Packet Engines: (509) 922-9190





## What to do about Memphis?

**W**indows migration strategies are never straightforward. Last year, I warned you about the pitfalls of bypassing Windows 95 in order to take your business desktops directly from Windows 3.X to Windows NT 4.0. The

main problem was the number of 16-bit Windows applications in use that could not be ported to Windows NT.

Now what should you do about Memphis?

This next edition of Windows has just entered beta testing in preparation for general release late this year or early next year. Like Windows 95, Memphis will support your old DOS and 16-bit Windows applications. So if you are still running these older applications, upgrading to Memphis might seem like a safer choice than waiting for the Windows NT 5.0 workstation to be released in mid-1998.

But this is not necessarily the case because Memphis really is more suited for home use than business use.

Windows 95, on the other hand, was supposed to be a transition technology for moving you from the limited multitasking of 16-bit Windows to the full multitasking of 32-bit Windows. It was intended as a stopover on your way to Windows NT.

Memphis' main improvements over Windows 95 are best suited for games, dial-up networks and first-time Internet users.

Memphis doesn't have the robust qualities needed to run line-of-business applications day in and day out. But Windows NT Workstation 5.0 will.

Version 5.0 builds on the robust features of NT 4.X and adds capabilities such as support for plug and play, the Zero Administration Initiative, better power management and new hardware support.

What it doesn't have, and will never have, is support for your old 16-bit Windows applications.

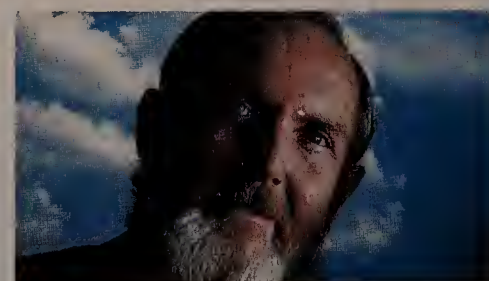
I realize you've become attached to those old applications. You know them inside out. They don't require much in the way of troubleshooting anymore. In fact, they pretty much run themselves.

But these applications are going to cost you heavily in the long

run as you try to keep the rest of your systems at a level that can continue to support these applications.

You don't have to move overnight. You have more than a year before NT 5.0 implementations will be practicable. But you should get started now by moving to Windows 95 and 32-bit applications. Memphis isn't going to help you—at least at work—so don't wait for it.

*Kearns, a former network administrator, is a freelance writer and consultant in Austin, Texas. He can be reached at wired@uquill.com.*



Dave Kearns

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## Dell, Compaq get pumped with Pentium II

By Marc Songini

Dell Computer Corp. and Compaq Computer Corp. are launching servers based on Intel Corp.'s new Pentium II, a microprocessor designed to run faster and provide greater reliability than other Intel chips. Key to the Pentium II is the addition of error checking and correcting memory, which polices for potential malfunctions that can crash a system.

The new Dell and Compaq servers will include Pentium II processors with a minimum speed of 233 MHz, though the Pentium II also is available at 266-MHz and 300-MHz speeds. The Pentium Pro, on the other hand, tops out at 200 MHz.

Dell's PowerEdge 4200 server — which can run on one or two Pentium II processors — is targeted at departmental LANs running Web, database and other applications. Depending on its configuration, the server can support roughly 150 to 300 clients. The 4200 complements Dell's recently released PowerEdge 2200 workgroup server, which also includes a

Pentium II engine.

Dell's server can run Windows NT and NetWare. Features include Ultra Wide SCSI 3 and Ultra Narrow SCSI 3 controllers.

The 4200 starts at \$5,349 and is available now.

Separately, Compaq announced its ProSignia 200, a workgroup server designed to support about 20 clients. Compaq officials expect the server will be used for file sharing and printing, office productivity applications and possibly as a small Web server. The server runs NetWare/IntranetWare and Windows NT.

The ProSignia 200 starts at \$2,083 and is available this week.

The jury is still out on the advantages of running Pentium II-based servers, said Lynda Fitzpatrick, a research analyst at International Data Corp. in Framingham, Mass. "Depending on what application you are running, you may not see a large increase in performance," she said.

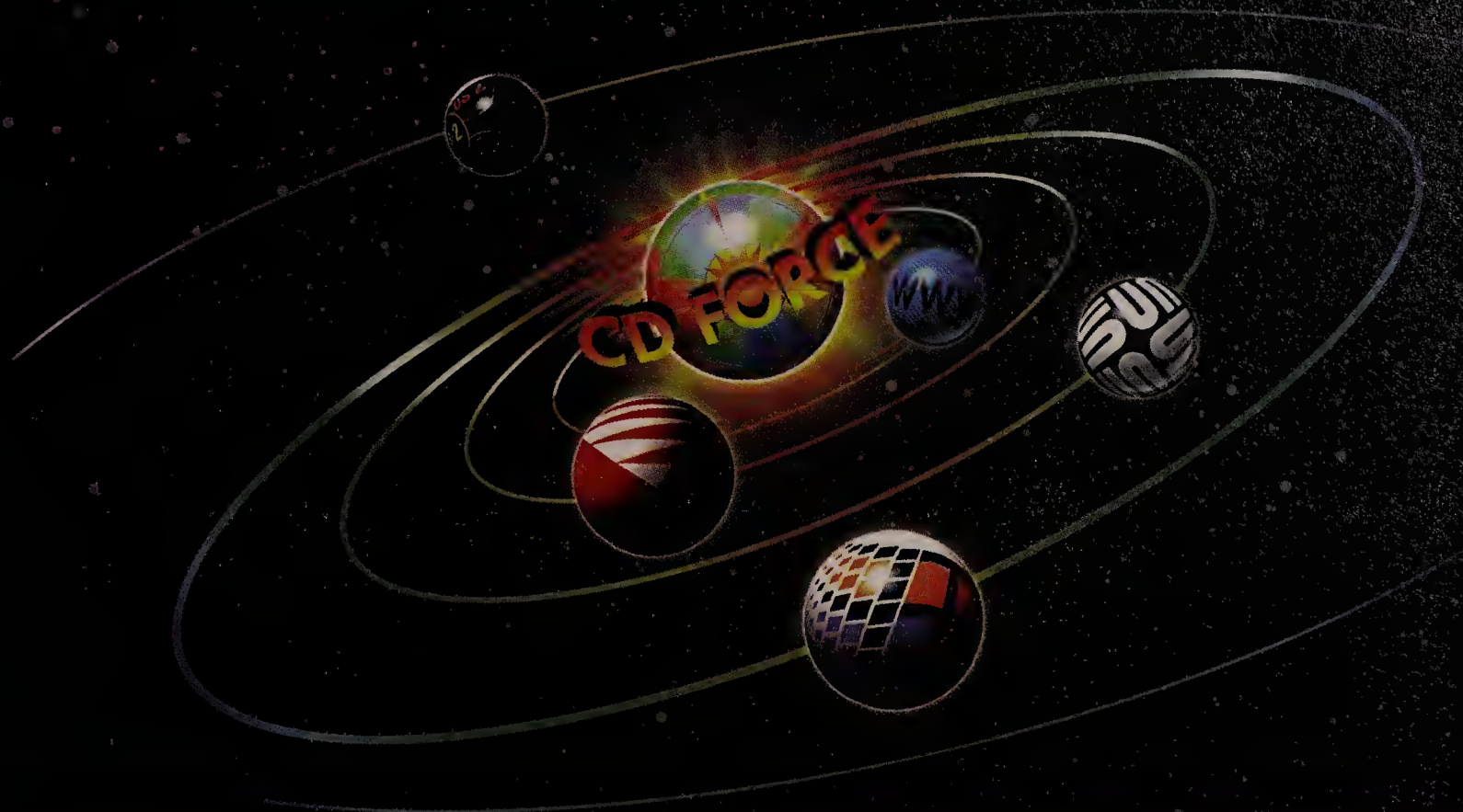
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The Dell PowerEdge 4200 offers Pentium II technology.



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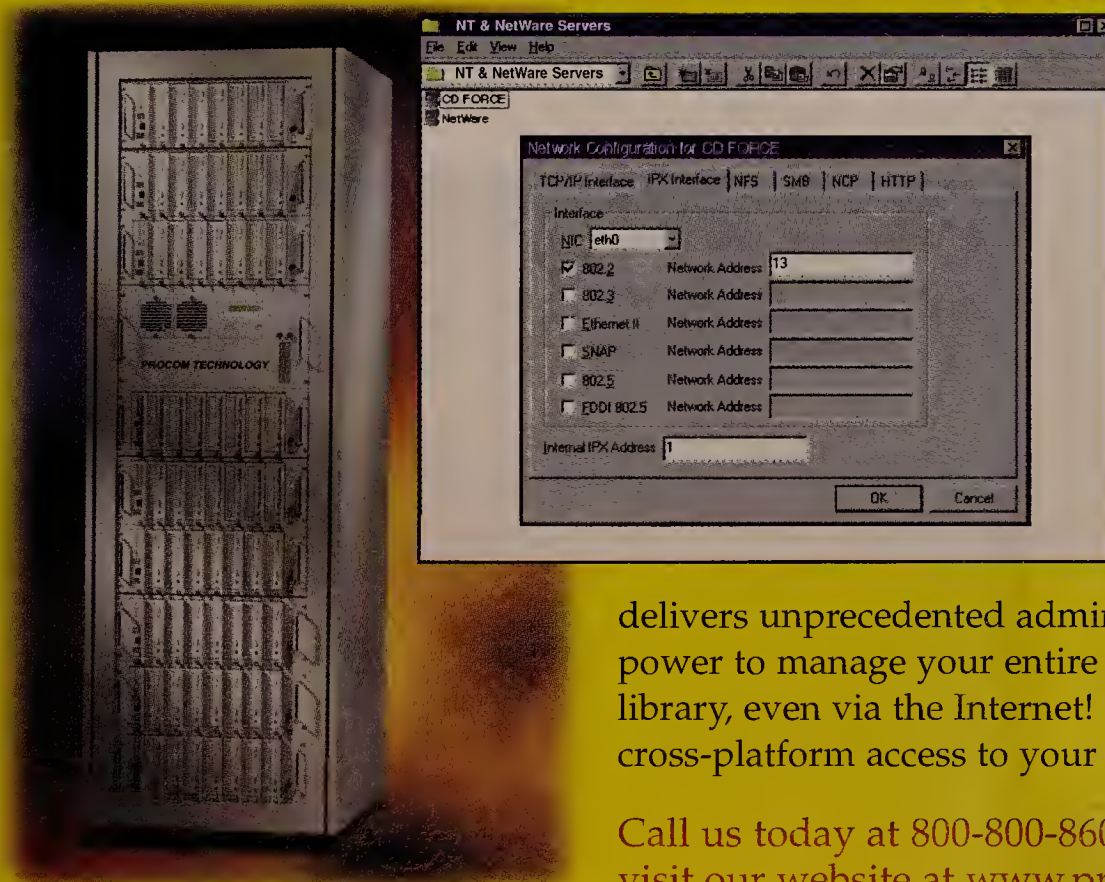


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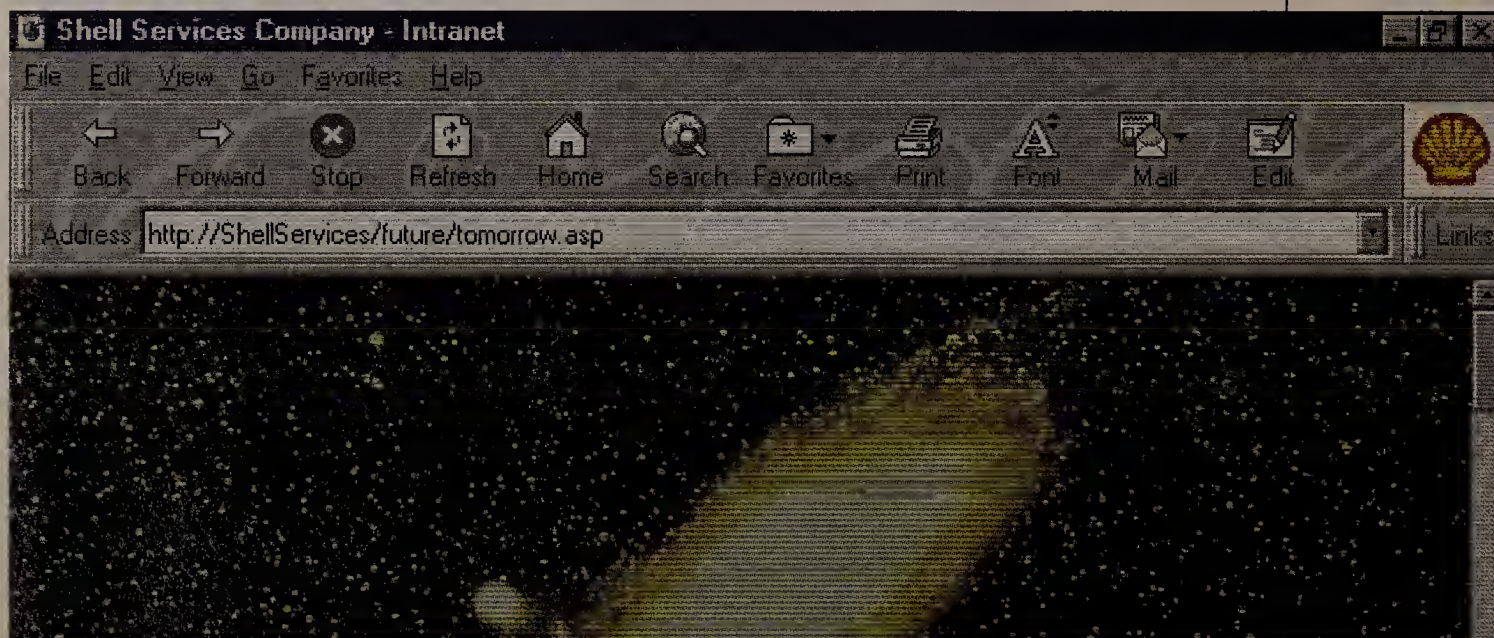
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## Briefs

■ **IBM** this fall will release the **P/390 PCI-based coprocessor card** for its RS/6000 025 Model F50 Server. The System/390 Server on Board will come in two memory sizes—32M bytes and 128M bytes. The card allows RS/6000 and S/390 applications to run simultaneously.



P/390 PCI-based coprocessor

The product will be released on Sept. 2, and price is available on request.

© IBM: (800) 426-2255

■ **CKS** last week announced **MyNet NT**, a centralized **single sign-on** authentication tool for Windows NT servers.

MyNet NT provides users in an NT-centered network with a single, secured logon to OS/390 mainframes, Unix servers and workstations, and Intel-based computers. CKS also is providing MyNet with authentication services on Unix servers.

MyNet NT will be available in limited quantities in the fourth quarter of this year. General availability will be in the first quarter of 1998. User-based prices range from \$35 to \$200 with discounts available for large installations.

© CKS: (800) 321-9004

■ **IBM** last week announced new connectivity enhancements for its **9729 Optical Wavelength Division Multiplexer Model 001**. New features include an **Inter-System Coupling (ISC) Links** adapter card for single-mode fiber and **HiPerLinks Coupling Links** for an Enterprise Systems Connections attachment. IBM also is offering support for 100M bit/sec Ethernet through the 9729's existing FDDI adapter.

The product will be available Sept. 12. The price of the ISC adapter is \$10,000; other prices were not available.

© IBM: (800) 426-2255

## New IBM software cuts branch connectivity costs

By Marc Songini

Raleigh, N.C.

IBM announced last week new SNA software that the firm claims will cut branch connectivity costs by 50%.

IBM's Branch Extender software, which will reside on the company's routers, servers and other devices, functions as an SNA traffic cop, relaying SNA traffic between branch offices and the corporate backbone.

"It basically works as a multiplexing scheme to make the branch [office] appear as a single node in the network," said Mike Evans, director of the SNA product group for Data Con-

IBM's Branch Extender	
<b>Emulates an APPN end node upstream.</b>	<b>Emulates a network node downstream.</b>
▲ Exchanges no topology data	▼ Acts like standard APPN network node server to branch nodes
▲ Registers branch resources to an APPN network node in the WAN	▼ Provides high availability via High Performance Routing
▲ Eliminates unnecessary searches	▼ Supports 3270 clients via dependent Logical Unit Requester
▲ Supports direct branch-to-branch paths	

tion, Ltd., a U.K. software developer that helped IBM build Branch Extender.

Branch Extender utilizes existing IBM Advanced Peer-to-Peer Networking technology to achieve its goals. For example, it

bundles High Performance Routing (HPR) and dependent Logical Unit Requester technology to let SNA traffic flow from remote branch offices to the corporate data center.

HPR is next-generation APPN technology that, among other things, allows users to route around failures; dependent LU Requester lets legacy 3270 applications communicate over APPN-based nets.

One unique piece of the Branch Extender software allows it to automatically update a local directory server of any additions,

moves or net changes without manual definition on the server.

IBM said it will put Branch Extender into the software that controls its routers as well as bundle it with existing eNetwork Software server suites.

"Branch Extender is something that was developed to let even the largest SNA networks take advantage of high-performance routing," said Marcia Peters, senior technical strategist for IBM.

For example, Peters said, an enterprise with 600 sites that reboots its OS/2 Communications Server/2s each day might find the operation takes up to an hour. Each node is configured as a network node, and there is a lengthy, systemwide topology dialogue going on. With Branch Extender, the unnecessary data transfers would cease and the system would restart in seconds.

The product will begin shipping this fall. Pricing information was unavailable. ■

## CA, HP trying to lure customers into bigger buy with freebies

By Jim Duffy

Computer Associates International, Inc. and Hewlett-Packard Co. are trying to lure users to buy more of their management products by tempting them with freebies.

Like a candy store owner who baits children into a purchase with tempting handouts, recent

Group, Inc. in Stamford, Conn. "The HP stuff is really not something that you get for free; if you do use it you have to license [it]."

CA two weeks ago announced the Unicenter TNG Framework program, an initiative to bundle a stripped-down version of its Unicenter TNG enterprise management system with server platforms from multiple vendors. CA enlisted some 14 companies to back its Unicenter TNG Framework strategy, including hardware heavyweights Digital Equipment Corp., Fujitsu ICL Computers, Ltd., NCR Corp.,

Sequent Computer Systems, Inc., Tandem Computers, Inc., Unisys Corp. and HP.

"CA's saying, 'If we were on every server like Microsoft [Corp.], all software vendors would have to work with us,'" said Sue Aldrich, a research analyst and senior consultant at the Patricia Seybold Group in Boston. "CA also figures that by giving TNG away, nobody will buy Tivoli [products]."

Tivoli is undaunted by this strategy. "This is clearly a response to the fact that Tivoli

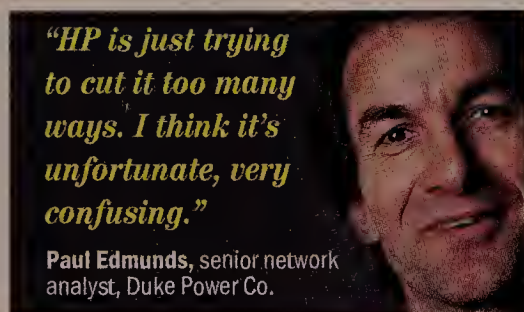
has had extraordinary success in the marketplace, and we view this as strictly reactionary from CA," said Tom Bishop, vice president of infrastructure development at Tivoli. "The solution that they're talking about, bundling, is really a LAN-based solution that doesn't have any real fundamental play in the enterprise space. If you say you are an enterprise player, it would be interesting if, in fact, the technology they were making available was enterprise-level technology."

HP's OpenView-Ready program, announced two days after CA's Unicenter TNG Framework initiative, intends to bundle subsets of OpenView IT/Operations and Network Node Manager with high-volume systems and servers. To date, HP has recruited Dell Computer Corp.

"What they're giving away is a crippled version of OpenView that doesn't scale very well," said David Passmore, president of consultancy Decisys, Inc. in

Herndon, Va. "If you wanted to scale to enterprise levels, you'd still want to buy a separate copy of OpenView."

That HP's computer operation is supporting the CA Uni-



an-ouncements from CA and HP that they will bundle their respective management products with servers at low or no cost are attempting to hook users into a larger, more expensive purchase, analysts said. CA, HP, and IBM's Tivoli Systems, Inc. subsidiary are rivals in enterprise management.

"CA is actually giving away framework components for free that really don't do a lot unless you buy some other things on top of it," said Herb VanHook, program director at META

Go online for:

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- Another example of HP knocking its own products

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NetworkWorld Fusion

center TNG Framework program in addition to OpenView-Ready is causing some discomfort at HP. Dick Watts, HP's general manager of worldwide computer sales, even gave CA a glowing endorsement by saying it was the preferred vendor for end-to-end enterprise management (NW, July 21, page 1).

Watts later retracted that statement after taking some heat. See CA-HP, page 24.



Network Infrastructure

# Cisco's Layer 3 switching delayed

*NetFlow daughtercard timed for release with Gigabit Ethernet.*

By Jim Duffy

San Jose, Calif.

Even though Cisco Systems, Inc. began shipping a Route Switch Module (RSM) for its high-end LAN switches four weeks ago, users will not be able to deploy Layer 3 switching on the box until early next year.

Layer 3 switching is delayed because Cisco will not ship a NetFlow feature card for the Catalyst 5500 until then. This gives Cisco's competitors at least a six-month jump on the internetworking leader in the market for Layer 3 switches.

The NetFlow feature card, which runs on a Catalyst supervisor module, combined with the RSM allows the 5500 to switch Layer 3 flows at wire speed and scale packet forwarding from hundreds of thousands packet/sec to multiple millions packet/sec, Cisco said. NetFlow also provides enhanced security and detailed traffic statistic collection. Without the NetFlow card, the RSM is merely a router that can forward 170,000 packet/sec.

NetFlow, which is already shipping on Cisco routers, is a caching technique that enables the first packet in a flow to be processed by a router, which then passes the flow identity to the Catalyst 5500 switches. Subsequent packets are "cut-through" — meaning they are forwarded between switches without going through a router — to scale performance.

Cisco's competitors — Bay Networks, Inc., Cabletron Systems, Inc. and 3Com Corp. — are already shipping Layer 3 switches or Layer 3 capabilities on their switches. But Cisco will feel little pain, if any, from its late entry into the Layer 3 switching market because users will not need that capability until they scale their networks to gigabit speeds, said Marthin De Beer, product line manager for Cisco's Workgroup business unit.

Hence, the NetFlow feature card is timed to ship concurrently with Cisco's Gigabit Ethernet switching modules for the Catalyst 5500, De Beer said.

Analysts, however, were divided on the

impact a six-month delay will have on Cisco. "They're late; they're very late," said Don Miller of Dataquest, Inc. in San Jose, Calif. "That's going to open the door to Bay and 3Com, without a doubt. Bay's shipping the SwitchNode [Layer 3 switch] in volume right now. They're going to have an opportunity to establish an embedded base of some of this

new technology."

"This continues to put Cisco behind everybody else, but Cisco's coming at this from the routing perspective," said Skip MacAskill of Gartner Group, Inc. in Stamford, Conn. "Their users for the most part are still using traditional routing, and the market for [Layer 3 switching] is not likely to really start until 1998." ■

## CA-HP

*Continued from page 23*

from HP's OpenView department. But one analyst said Watts' comments, combined with what he views as a network management-centric OpenView-Ready program, allows HP to make a dignified exit from the systems management market.

"This certainly provides them the opportunity to gracefully disengage from a full systems management strategy," said Rich Ptak, director of systems management research at D.H. Brown Associates, Inc. in Amherst, N.H.

HP has no intention of retreating from the systems management market, said Olivier Helleboid, general manager of HP's Network and Systems

Management Division.

"The OpenView-Ready program actually reinforces our commitment to systems management," Helleboid said, referring to the lightweight version of IT/Operations that will be bundled with servers and to other recent announcements and acquisitions. "It's completely opposite of disengagement. It's even more of an engagement."

Similarly, OpenView users do not see HP exiting the systems management game anytime soon.

"They're just trying to add value to their own systems," said Paul Edmunds, senior network analyst at Duke Power Co. in Charlotte, N.C.

"OpenView has strong penetration. I don't believe the guys who are saying 'the death knell' and 'the end of OpenView' and all of that," Edmunds said. ■

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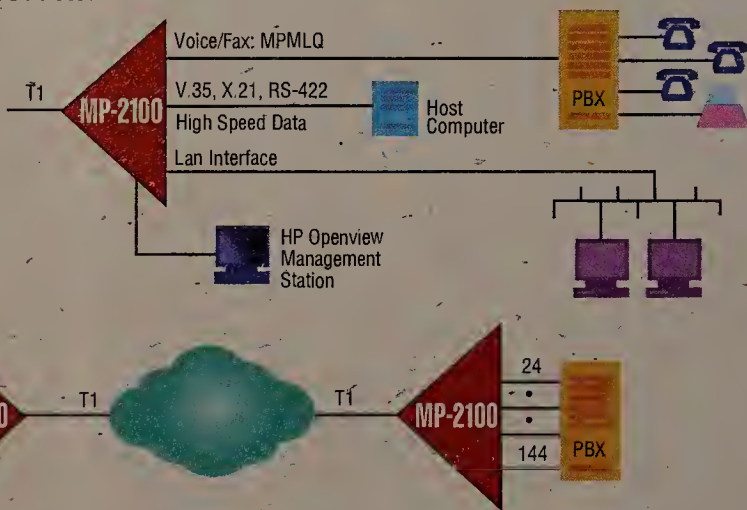
### 144 Voice Channel over Single T1 with Data, Voice, LAN Multiplexer

Name: Megaplex - 2100

Description: T1/E1 integrating voice & data multiplexer

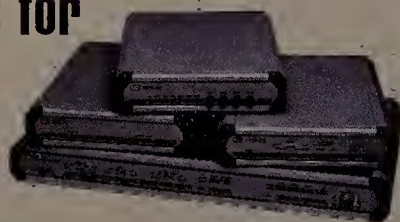
**Benefit:** Flexible modular TDM integrating data, voice, fax, LAN and video over T1/E1 links on **fiber, copper, microwave, laser or RF** communications. Voice technology expertise: **MPMLQ, ADPCM**, compression of full T1 PBX and standard PCM. Support of 144 voice channels over a single T1 link. I/O modules for **ISDN, routers, DDS and low and high bit rates**. Graphical SNMP management with **HPOV or Windows/PC** platform. **Full redundancy** with dual aggregate links, power supplies and common logic cards. A member of RAD's family of high speed WAN access products.

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OPTIMUX-4T1: multiplexes **four T1 links over single fiber** up to 50 miles. Redundant link, dual power supply, **SNMP** network management.

**Benefit:** Standards compliant, supporting **single mode, multimode** fiber; **850, 1300 or 1550 nm** wavelengths; **LED or laser** light sources; and choice of connectors. Integral diagnostics compliance with V.54 standards. Standalone units or cards for nest.

## MANAGE DATA, VOICE, FAX & LANS UNDER SINGLE SNMP

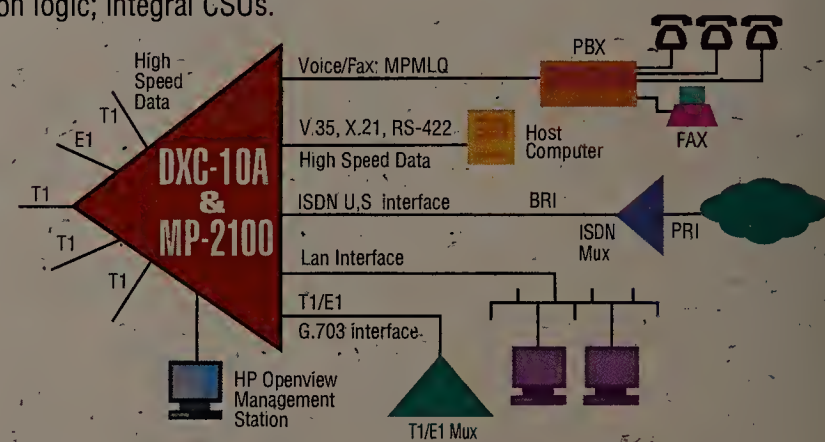
### Modular Multiplexer & DACS with Multiple T1 Links.

Name: Megaplex-2100 and DXC-10A

Description: Multi channel T1/E1 multiplexer & DACS under one **SNMP** network management

**Benefit:** Cost effective solution for building strong corporate networks, **integrating data, voice, fax and LANs**. **Multiple T1/E1 switched links managed under single SNMP** on HPOV or Windows/PC platform. Providing **T1/E1 conversion, RBS/CAS/R2 conversion**, high speed multiplexing and routing. Full redundancy with power supplies and common logic; integral CSUs.

Application:



## INTRODUCING TOLL QUALITY VOICE

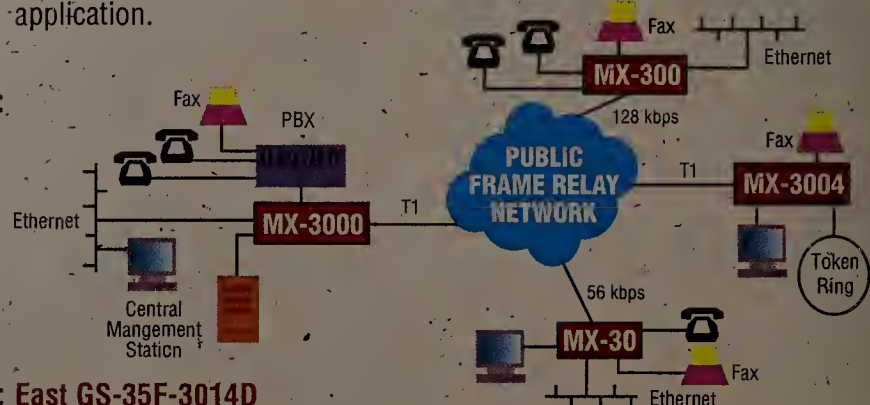
### A Bandwidth Manager with Voice over Frame Relay.

Name: MAXcess-3000

Description: Integrating bandwidth manager

**Benefit:** Efficient bandwidth management integrating toll quality compressed **voice (MPMLQ), fax, data and LAN** over **frame relay** or leased lines at data rates up to T1. **LANs adaptively sharing bandwidth with multiple voice channels**. Ideal for **drop & insert** of multiple sites or star configurations. Central **SNMP** management. Several hub sizes for any application.

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## Briefs

■ **Outgoing Federal Communications Commission Chairman Reed Hundt** called on Congress to block further bankruptcy filings by winners of **FCC wireless licenses** whose payments are due.

Hundt urged Congress "to make crystal clear to even the most ingenious, pettifogging, persevering lawyers" that bankruptcy filings will not prevent the FCC from revoking FCC's Hundt wireless licenses of those who do not pay up. Many recent winners of personal communications services digital wireless licenses claim they overbid because of the FCC's excessive hyping of the business opportunity.

■ **Digex, Inc.** is now officially part of **Intermedia Communications, Inc. (ICI)**, a Tampa, Fla.-based competitive access provider. Last month, ICI announced its plans to acquire Digex (NW, June 9, page 73). The merger became final earlier this month. Intermedia bought 98% — or more than 11.8 million shares — of Digex common stock. Digex supports more than 2,000 business customers and an Internet backbone based on a national fiber-optic network. Digex is the fourth Internet service provider to be bought by a telecommunications service provider.

■ Business users may be hearing more about **Digital Island, Inc.**, an Internet service provider start-up that specializes in **multinational Web hosting** and intranet services (NW, Jan. 13, page 1). The Honolulu-based company this month signed a deal with several value-added resellers and systems integrators that will bring Digital Island's services to more than 30 countries.

© Digital Island: (808) 540-4000

## Sprint buys LAN, desktop management integrator

By David Rohde  
Houston

Sprint Corp. last week barreled its way past the router and onto the desktop by purchasing a LAN integrator.

The No. 3 long-distance carrier announced it will acquire Paranet, Inc., a rapidly growing network design and management company based here, for \$425 million in cash.

Sprint will marry Paranet's LAN and distributed systems management offerings with its own managed WAN services, creating an end-to-end managed-network offering, said Gary Forsee, president of Sprint's long-distance division. The offering also will include Paranet's

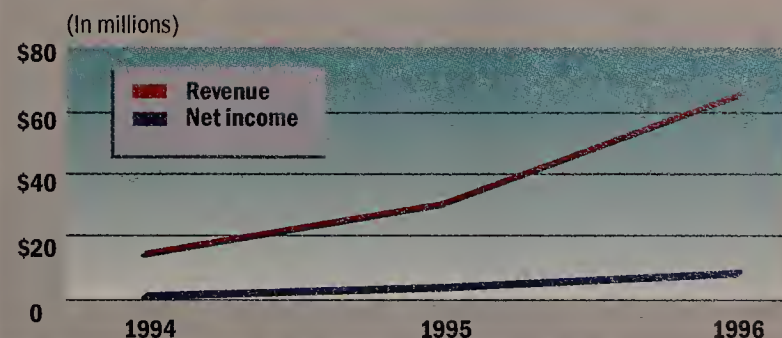
help desk and other support services.

Sprint's move recalls MCI Communications Corp.'s purchase two years ago of the Canadian outsourcing company SHL Systemhouse, Inc., now known as MCI Systemhouse. But Forsee said Paranet is exclusively devoted to distributed systems management as opposed to "glasshouse outsourcing," a reference to Systemhouse's original expertise in mainframe-based data center management.

By contrast, AT&T so far has failed to find a partner to provide LAN management services for its Managed Network Solutions business unit, which provides WAN services such as design and

### MUSHROOMING GROWTH

As an independent company, Sprint's newly acquired Paranet unit doubled in size in each of the past few years:



monitoring of frame relay nets. However, AT&T offers more complete outsourcing to large users via its AT&T Solutions business unit.

Sprint was attracted to Para-

net largely because of Paranet's franchise-like approach to its 27 branch offices. Technical analysts in each office use a standard system dubbed Network Operations Management, or NOMAN — essentially a proprietary knowledge base of industry-best practices and processes — to replicate management procedures across clients.

Founded in 1991, Paranet ranks well down most lists of network integrators, based on revenue. That is largely because it does not resell hardware, according to Michael Holthouse, the company's president and founder. "We have been an extraordinarily well-kept secret," Holthouse said. Nevertheless, Paranet has demonstrated an uncanny knack for almost exactly doubling in size every year (see graphic), a feat it expects to achieve this year.

Sprint and Paranet have some work to do before charging out after end-to-end managed service customers. Until now, Paranet has provided ongoing network management and maintenance by staffing separate network operations centers within each client user company. But it has lacked a centralized operations center of its own.

Within a year, Forsee said, Sprint and Paranet should be able to provide remote LAN monitoring services from Sprint's network operations centers, though he did not reveal the price of such services.

The deal is expected to close by the end of the year. Holthouse will become president of Sprint Paranet, a Sprint managed services division. ■

## ISPs dress up Web hosting services

By Denise Pappalardo

In a market in which it is increasingly difficult to differentiate one Internet service provider's Web hosting service from another, ANS Communications and BBN Planet are trying to come up with new wrinkles.

using Open Market, Inc.'s Transact software to handle the management and processing of electronic purchases for Web Hosting customers.

The Transact software, which is hosted at ANS' Web server farm in Reston, Va., offers users order management, on-line customer service, security, authentication, purchase and payment models and secure transaction processing. When users sign up, they receive a Transact software license and client software that lets them integrate commerce features into their Web content.

ANS' Web hosting monthly service charges typically start at \$2,500, but the electronic commerce features are more pricey, starting at \$12,000 per month.

BBN Planet also recently announced a new flavor of its Web hosting service called Web Advantage Dedicated Unix 4.0.

BBN Planet, the ISP division of BBN Corp., now offers users database and electronic commerce support. BBN's latest Web hosting service will let customers integrate an Oracle Corp. Ora-

cle7 Workgroup server and CyberCash, Inc.'s electronic commerce software into their site.

The server, managed and supported by BBN, will let users add and manage content such as a catalog to their Web site. The database feature also will create a streamlined process for handling order information from on-line shoppers. The CyberCash feature allows users to integrate online purchasing to their site.

BBN also announced it will install and configure other vendors' software for users that want to use different electronic commerce or database packages.

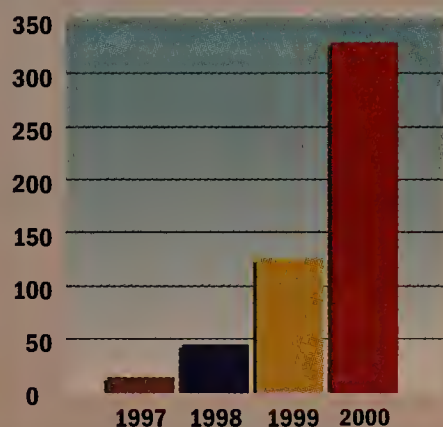
The service is available now with monthly fees starting at \$1,995. The Oracle feature costs an additional \$795 per month and includes the Oracle software license. CyberCash is included in the base service.

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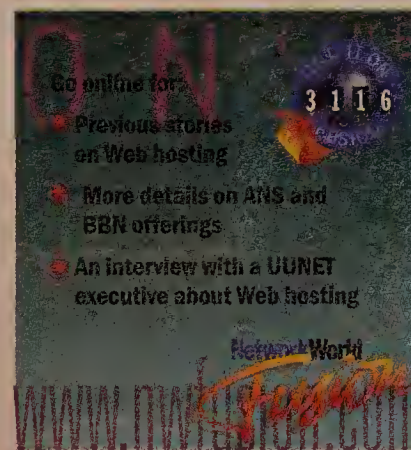
### WEB HOSTING GROWTH EXPECTED

International Data Corp., based in Framingham, Mass., predicts more users will opt to outsource their Web hosting needs, especially as Internet service providers add more value to their services.

Number of Web hosting customers (in thousands)



ANS Communications, an America Online, Inc. ISP, enhanced its Web Hosting Services with electronic commerce features that let users set up an electronic storefront. ANS is





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# No such thing as global frame relay?

**D**o you believe what carriers say about offering seamless global frame relay service with their respective worldwide partners?

If you need information about global frame relay service availability and pricing, you'll probably find it's faster, less frustrating and more enjoyable to grab your passport and hop on a plane so you can talk to a local salesperson overseas.

We experienced this frustration firsthand. As TeleChoice and *Network World* are again gearing up to do a national tour on frame relay networking, we planned to expand the material on international frame relay services.

We approached "global" frame relay service providers to get updated information about what's available internationally. Because we've been looking at opening an office in Asia, we figured we could kill two birds with one stone.

We thought this information would give us some interesting insights into what our end-user audience would face under similar circumstances.

Boy, were we right! We tried to make

our questions straightforward. We pre-designed the network so there could be no confusion. Well, we soon found that confusion has been raised to a fine art when it comes to getting international frame relay service information.

We asked for basic information that any buying customer would need to know to make decisions. The information requested included the availability of specific international locations, optional services, managed network services, network management tools, the platform and others. We already knew the answers to many of these questions, but we wanted to get a good feel for the response we would get by going through official channels. We were appalled.

Our contact at MCI is always very responsive and, in this case, was no different. Unfortunately, we found that

dealing with the people at Concert, MCI's joint venture with BT, was a different story. After spending a month trying to get the information, we got a big, fat goose egg.

AT&T did its piece well and quickly, but this was only one half of the international network. None of the carriers' WorldPartners responded. Because half a network isn't much good, this was mostly a wasted effort.

We've been led to believe that if we get a magic hat, spin around and click our heels together three times, we might be able to get the other half of the AT&T information. But we have had a coworker trying this for the past week, and so far it hasn't worked. Maybe we got the wrong size hat.

CompuServe responded quickly but with very incomplete information. The company said it

might be able to share more information but it'd have to kill us afterward, and we really didn't think it was worth the price.

It made us question whether CompuServe is an applicable provider of these services.



**Daniel Briere and Christine Heckart**

Cable & Wireless has been promising to deliver our requested information for more than a month.

All of these companies basically said to us that very little, if anything, is standard for international services, including end-to-end customer support procedures. They'll do whatever it takes to win the business — unless you want responsive customer service or clear, concise answers, that is.

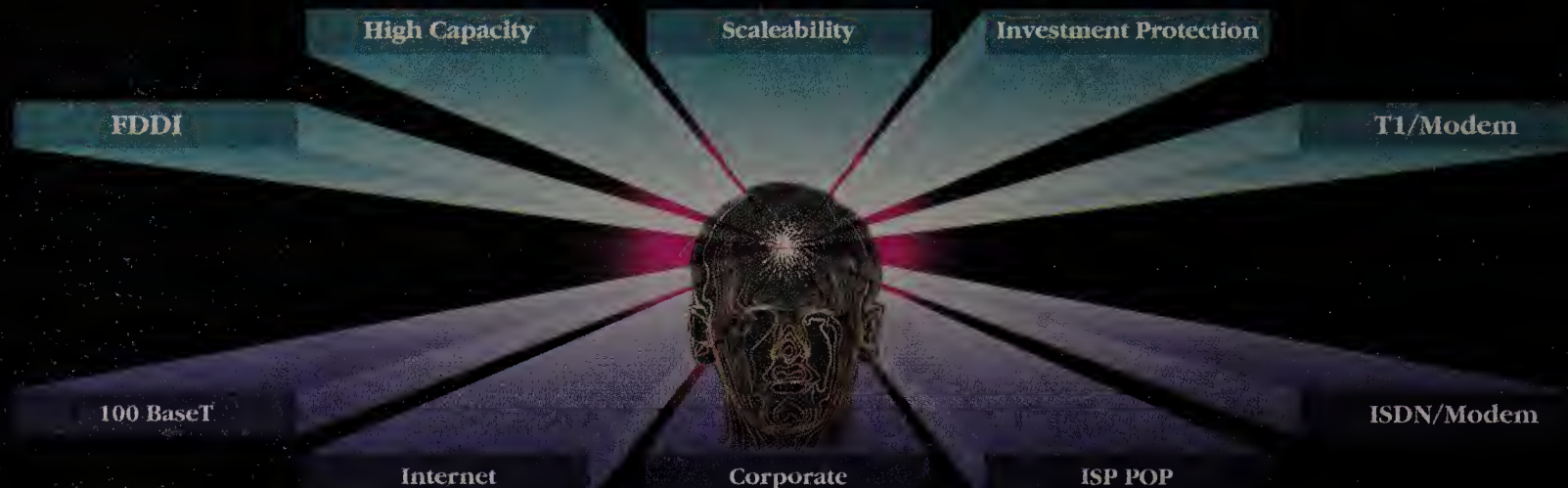
There was one positive note. Equant was extremely responsive and it has a very cool customer reference guide. But Equant is a sponsor of our seminar series, which might have influenced the company's responsiveness.

Of course, we're an MCI frame relay customer, and this didn't stop Concert from giving us the cold shoulder.

We drew two conclusions: Service providers need to work on putting the "service" back into the name, and you're probably better off using the Internet for international communications, at least for now.

*Briere is president and Heckart is director of broadband with TeleChoice, Inc., a consultancy in Verona, N.J. They can be reached at [dbriere@telechoice.com](mailto:dbriere@telechoice.com) and [heckart@telechoice.com](mailto:heckart@telechoice.com).*

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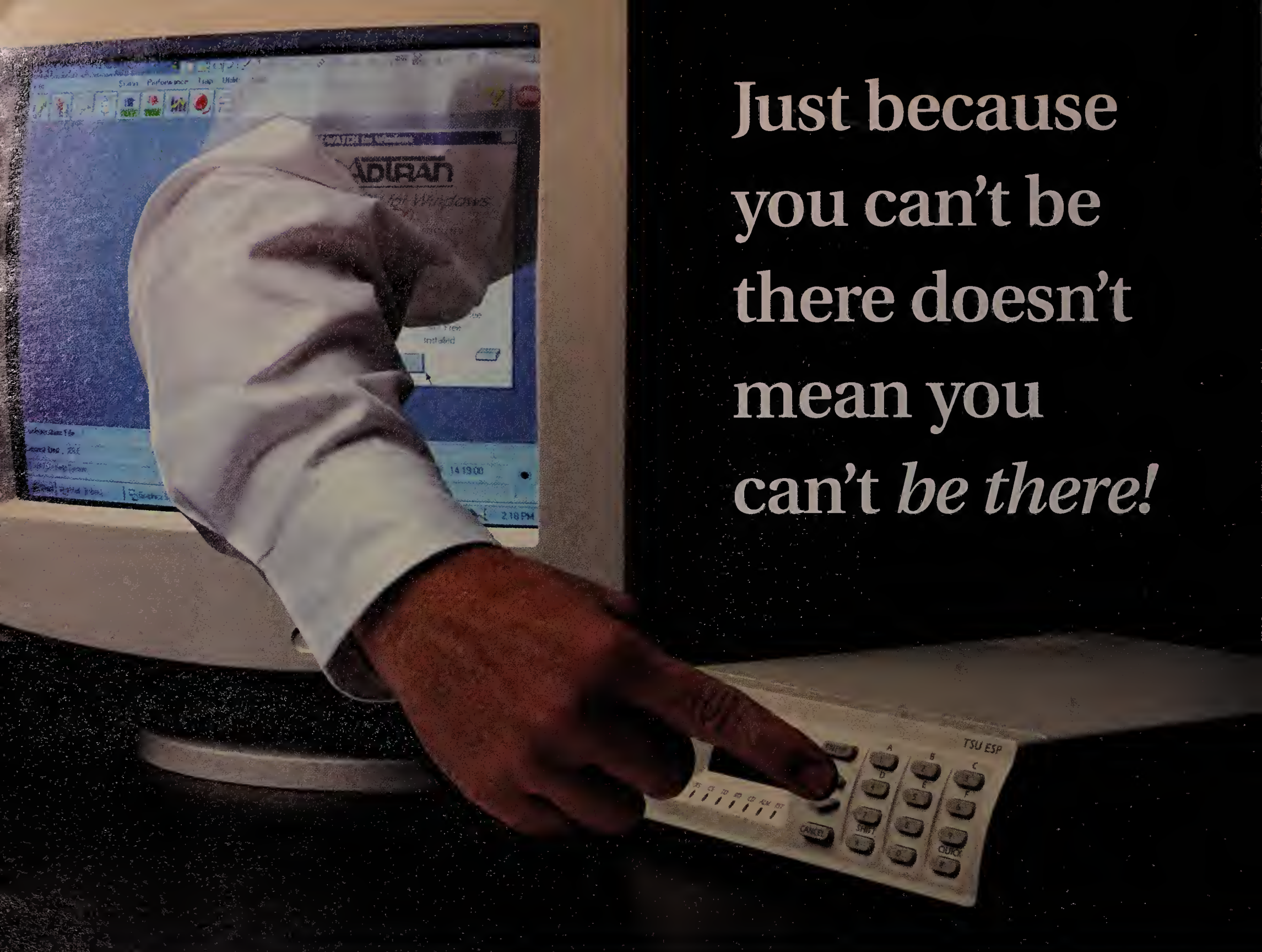


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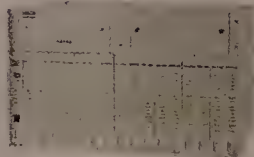


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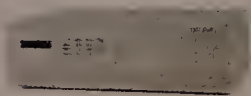
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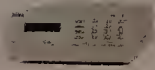
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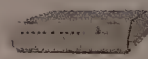
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Wednesday, August 27  
9:00 am - 5:00 pm  
Thursday, August 28  
9:00 am - 5:00 pm

### KEYNOTE SPEAKERS

Tuesday, August 26 8:00 - 9:00 am

#### HP's Computer Strategy: Creating the Extended Enterprise

*Rick Belluzzo, Executive Vice President and General  
Manager, Computer Organization, Hewlett-Packard Co.*

Wednesday, August 27 11:00 - 11:50 am

#### Surviving in the Internet Age

*Jim Louderback, Editorial Director, PCWeek*

Thursday, August 28 11:00 - 11:50 am

#### Setting the New Standard

*Robert L. McDowell, Vice President, Enterprise  
Business Relationships, Microsoft Corporation*

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### HP PLENARY SESSIONS

High-level HP Managers reveal their short- and long-term strategies

Tuesday 10:00 - 10:50 am

#### Empowering the Extended Enterprise

*Janice Chaffin, General Manager, Enterprise Systems Division*

Tuesday 1:00 - 1:50 pm

#### The Legacy Continues—The HP 3000 In the 21st Century

*Harry Sterling, General Manager, Commercial Systems Division*

Wednesday 9:00 - 9:50 am

#### NT in the Enterprise: Strategic Directions for HP's PC x86-based NetServers

*Maria Cannon, General Manager, Enterprise NetServer Operation*

Wednesday 1:00 - 1:50 pm

#### Helping You Manage Total Cost of Enterprise Ownership

*Ann Livemore, Vice President and General Manager,  
Worldwide Customer Support Operations*

Thursday 9:00 - 9:50 am

#### HP's Computing Strategy—Keeping You a Step Ahead

*Dick Watts, Vice President and General Manager,  
Computer Sales and Distribution Group*

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YOUR SIGNATURE (REQUIRED) \_\_\_\_\_

### PROFILE (required)

#### YOUR JOB FUNCTION

Check up to three if applicable.

- |  |   |
|--|---|
| <input type="checkbox"/> Owner/President/CEO   | <input type="checkbox"/> Electrical/Mechanical Engineer |
| <input type="checkbox"/> VP/Corporate Officer/ | <input type="checkbox"/> System Administrator           |
| CFO/Controller                                 | <input type="checkbox"/> Database Administrator         |
| <input type="checkbox"/> CIO/MIS Director      | <input type="checkbox"/> Network Administrator/         |
| <input type="checkbox"/> Sales/Account         | Manager   |
| <input type="checkbox"/> Representative        | <input type="checkbox"/> Systems Analyst                |
| <input type="checkbox"/> MIS Manager           | <input type="checkbox"/> Software Developer/            |
| <input type="checkbox"/> Operations/           | Programmer  |
| Data Center Manager                            | <input type="checkbox"/> Operator                       |
| <input type="checkbox"/> Technical Manager     | <input type="checkbox"/> Consultant/Educator            |
| <input type="checkbox"/> Scientist/Researcher  |   |
| <input type="checkbox"/> Other                 |   |

#### APPLICATION SUPPORT

The primary application that you support is:

- ☐ Commercial ☐ Technical ☐ Commercial & Technical

#### PURCHASES

Purchases that you influence, specify or  
recommend. Check all that apply.

- |   |                                   |
|---|-----------------------------------|
| <input type="checkbox"/> COMPUTER/<br>WORKSTATION SYSTEMS | <input type="checkbox"/> SOFTWARE |
| <input type="checkbox"/> PERIPHERALS                      | <input type="checkbox"/> NETWORKS |
| <input type="checkbox"/> None of the above                | <input type="checkbox"/> SERVICES |

#### ANNUAL BUDGET

Total annual external IS spending on hardware, soft-  
ware, networking, and contract services

- |   |   |
|---|---|
| Your Own<br>Organization                          | Your Best<br>Associate Organization             |
| <input type="checkbox"/> Less than \$100,000      | <input type="checkbox"/> \$10 to \$25 million   |
| <input type="checkbox"/> \$100,000 to \$250,000   | <input type="checkbox"/> \$25 to \$50 million   |
| <input type="checkbox"/> \$250,000 to \$500,000   | <input type="checkbox"/> \$50 to \$100 million  |
| <input type="checkbox"/> \$500,000 to \$1 million | <input type="checkbox"/> \$100 to \$250 million |
| <input type="checkbox"/> \$1 to \$5 million       | <input type="checkbox"/> \$250 to \$500 million |
| <input type="checkbox"/> \$5 to \$10 million      | <input type="checkbox"/> Over \$500 million     |

#### SYSTEMS

Computer technologies you are involved with  
and/or you plan to purchase. Check all that apply.

- |  |   |
|--|---|
| Involved Plan to<br>with purchase      | Involved Plan to<br>with purchase                             |
| <input type="checkbox"/> UNIX desktops | <input type="checkbox"/> HP 3000                              |
| <input type="checkbox"/> HP            | <input type="checkbox"/> IBM AS/400                           |
| <input type="checkbox"/> Sun           | <input type="checkbox"/> Mainframes                           |
| <input type="checkbox"/> IBM           | <input type="checkbox"/> HP Convex                            |
| <input type="checkbox"/> SGI           | <input type="checkbox"/> Other Super Computers                |
| <input type="checkbox"/> Other         | <input type="checkbox"/> HP NetServer                         |
|  | <input type="checkbox"/> Compaq network servers               |
| Involved Plan to<br>with purchase      | <input type="checkbox"/> Other Intel-based<br>network servers |
| <input type="checkbox"/> HP            | <input type="checkbox"/> HP PCs                               |
| <input type="checkbox"/> Sun           | <input type="checkbox"/> Other PCs                            |
| <input type="checkbox"/> IBM           | <input type="checkbox"/> Windows NT desktops                  |
| <input type="checkbox"/> SGI           | <input type="checkbox"/> Windows NT servers                   |
| <input type="checkbox"/> Other         |   |

#### PRIMARY TYPE OF BUSINESS

Check one.

- ☐ Manufacturing (computer hardware)
- ☐ Manufacturing  
(non-computer products)
- ☐ Systems Integrator/VAR
- ☐ Software Developer
- ☐ Finance/Banking/  
Insurance/Real Estate
- ☐ Retail/Wholesale/Distrib.
- ☐ Government/Military
- ☐ Consulting
- ☐ Utilities/Communication  
Services/Transportation
- ☐ Health Services
- ☐ Education
- ☐ Agriculture/Mining/Construction
- ☐ R & D/Testing/Evaluation Labs
- ☐ Other \_\_\_\_\_





Featuring more than 200 HP-related exhibitors, the HP World '97 Expo is expected to attract more than 8,000 attendees.

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ASP Technologies, Inc.  
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Adager  
Advacate, Inc.  
Aldon Computer Group  
Allon Computer  
Apertus Technologies, Inc.  
APPIC  
Attachmate Corporation  
BEA Systems  
BMC Software  
Bering Technology, Inc.  
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CSI  
Camintonn Z-RAM  
Candle Corporation  
Century Analysis, Inc.  
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Client Systems  
Cognos, Inc.  
Comprehensive Software Solutions

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Operations Control Systems, Inc.  
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PeopleSoft  
Platinum Technology, Inc.  
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Productive Systems, Inc.  
Progeni Corporation, The  
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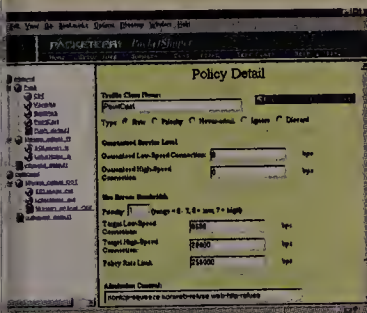


# Intranet Applications

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## Briefs

**Packeteer, Inc.** of Campbell, Calif., has added "push-back" technology to its PacketShaper 2.0 IP bandwidth manager.



PacketShaper 2.0

The technology allows network managers to control and prioritize information transmitted by push applications.

PacketShaper 2.0 is available now and is priced at \$7,250. Current users of PacketShaper can get the push-back feature added free.

© Packeteer: (408) 364-0197

**Internet Security Systems, Inc.** has begun shipping System Security Scanner 1.1, a \$3,500 network security assessment tool for Unix host systems.

The tool examines the operating system to expose weaknesses that could be exploited to gain unauthorized access to network resources. The software checks file permissions, file ownership, network service configuration and other factors.

© Internet Security Systems: (800) 776-2362

For companies in which English is not the primary spoken language, **PeopleSoft, Inc.** has begun shipping what it calls a global version of its **Financials** application in French, Canadian French, German and Spanish.

Dutch and Portuguese versions are expected next quarter. PeopleSoft also has its Human Resources application available in multilingual editions, including Japanese.

© PeopleSoft: (510) 468-2124

## It's a jungle out there on the Web

Start-up Junglee looks to ease management of Web and database information.

By Ellen Messmer  
Sunnyvale, Calif.

Start-up Junglee Corp. is out to prove that its new software can help companies sort through the jungle of information on the World Wide Web.

The company — named for the Hindi word meaning "from the jungle" — this week will introduce its first product, a database integration application called Canopy.

Running on a Solaris server, Canopy can extract data from a variety of sources, including Web servers, relational databases, text files and legacy systems. Canopy combines the extracted information into database tables. The tables then can be queried using standard SQL tools and displayed in HTML, according to Rakesh Mathur, Junglee's CEO and one of its founders.

Canopy is the first result of advanced research from Junglee's four founders. As doctoral

research students at Stanford University, they tackled the problem of refining database queries.

### Publishers sign on

Junglee's first customers include several newspapers, such as *The Washington Post* and *The Wall Street Journal*, which have taken Canopy and adapted it to serve a specific business goal: boosting advertising revenue on their Web sites.



Junglee CEO Mathur

*The Post* Web site (www.washingtonpost.com) has a CareerPost employment section that converts the newspaper's traditional print job listings into electronic form for the Web.

Junglee's technology led to refinements in the searches a job hunter can do at the site, said Ralph Terkowitz, *The Post's* vice president of technology.

"It gave us the detailed query information we wanted while letting us integrate our legacy classifieds system," he said. The newspaper uses System Integra-

tors, Inc. software for warehouseing ads.

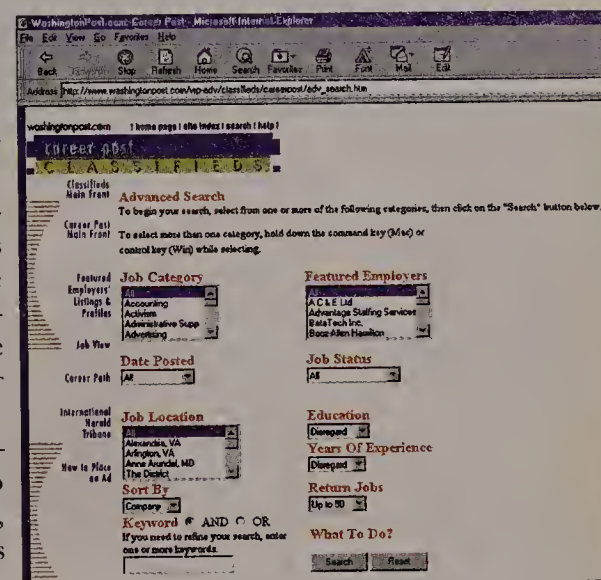
Junglee's technology also lets *The Post* provide its Web site visitors with job postings from other sites, Terkowitz said. Junglee's "wrapper" technology lets the Canopy server routinely poll Web sites where targeted data is stored, collect the data and aggregate it in the desired way for database queries.

*The Post* is selling wrappers to other companies, including Coopers & Lybrand LLP, which finds it worthwhile to post the information in searchable form at the popular PostWeb site.

For the next six months, Junglee expects to keep its energies focused on the publishing industry with a version of Canopy

called JobCanopy. But Mathur foresees more diverse Canopy-based applications being developed down the road.

"[Canopy] can be used for polling intranet databases and combining the content into something that can be viewed," Mathur said. "It could certainly be used in extranet applications."



With Junglee's Canopy, *The Washington Post* refined database searches at its www.washingtonpost.com Web site.

Junglee's technology does not come cheap. The company charges \$50,000 to license JobCanopy and \$3,000 per year, per source for its Web wrappers.

© Junglee: (408) 522-9494

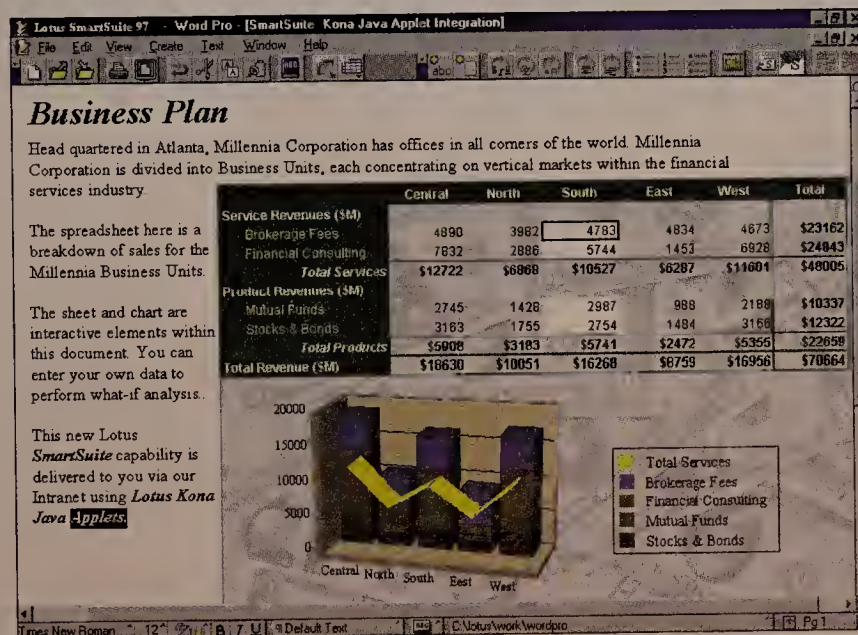
## Lotus adds Java to its SmartSuite 98 productivity applications

By Paul McNamara  
Cambridge, Mass.

Lotus Development Corp. is developing an answer for IT managers who want to deploy slimmer SmartSuite applications packages on end-user desktop machines, particularly thin clients.

SmartSuite 98 will utilize Lotus' fledgling Java-based Kona component applications and Infobus APIs, which link Java applets to each other, company officials said last week. The new offering should give network managers greater flexibility in matching user needs to appropriate computing power.

For example, an end user who rarely runs spreadsheets may get a version of SmartSuite 98 that contains a lightweight Kona spreadsheet applet instead of a full-blown version of Lotus 1-2-3.



Lotus' SmartSuite 98 will let an end user working in a WordPro document embed Java-based applets such as a spreadsheet or chart builder.

The Infobus would allow the Kona spreadsheet to interact with, for instance, a Kona chart builder — all within a Word

Pro document.

Users see the SmartSuite/Kona combination as a way to reduce the administrative bur-

dens and costs associated with maintaining full productivity suites.

"We are looking at network computing pretty seriously," said Dan Whobrey, a systems analyst with a large, Midwestern insurance company that has SmartSuite widely deployed. "The whole idea [of SmartSuite 98 using Kona] is very intriguing, and we're anxious to see how [Lotus brings] it about."

According to Lotus, SmartSuite 98 also will offer:

- Full compatibility with Microsoft Corp. Word and Excel files, as well as enhanced backward interoperability with older versions of SmartSuite.

- Integration of systems management technology from Tivoli Corp., an IBM subsidiary, that will allow central administration

See SmartSuite, page 36



# Microsoft dives into audio streaming market

*Software giant partners with and makes minority investment in Progressive Networks.*

By Marc Ferranti

Redmond, Wash.

Microsoft Corp. last week said it will license Progressive Networks, Inc.'s RealAudio and RealVideo real-time streaming data technology and make a minority investment in the company.

The companies said they will work together to help define industry standards for the streaming media market and to accelerate the growth of real-time audio and video on the Internet.

Microsoft's investment in Progressive gives Microsoft a nonvoting interest in the company. No other financial details of the pact were announced.



Microsoft's Paul Maritz

The companies said they will work cooperatively and with other industry partners to define future versions of Microsoft's Active Streaming Format (ASF). Both companies will use ASF as the native streaming format for the next version of their streaming media products.

"One of the key points...is to create a common foundation on which the streaming media market can grow," said Paul Maritz, group vice president of platforms and applications at Microsoft.

Progressive has 85% of the market for streaming audio players — the software browsers require so users can listen to audio in real time over the Internet — according to Rob Glaser, chairman and CEO of Progressive and a former executive at Microsoft.

Though Progressive just recently started to offer software for the video player market, Glaser claimed the product is off to a good start. The Progressive Web site handles 50,000 to 100,000 software downloads a day, he said.

Real-time audio and video over the Internet has shaped up to be a market worth hundreds of millions of dollars each year. But for it to grow, software from different vendors needs to be interoperable, Glaser said.

"Having a large, unified base of technology is very important to content creators, as well as to software developers and users," he said.

The deal aligns the largest software developer in the world with the leader in the real-time streaming media software market, according to analysts.

"The heart of this announcement is about standards," said Ron Rappaport, an analyst with Zona Research, Inc. of Redwood City, Calif. "Microsoft is doing here what it did with the [Channel Definition Format (CDF)] in the push technology world — defining a standard for a nascent industry."

Microsoft has submitted its CDF for-

mat to the World Wide Web Consortium as a proposed standard for push technology and is now seen as a front-runner in

the market, Rappaport said.

Progressive will continue to make most of its revenue from professional, high-end

audio and video products. Currently, most individual users of RealAudio and RealVideo players download the product for free, so the products constitute only 10% of Progressive's total revenue, Glaser said.

*Ferranti is a correspondent with the IDG News Service in New York.*

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# 'NET INSIDER

## If we could only get rid of the people

**J**uly 17 was not a good day in the human fallibility department, as was reported in the right and left columns on the front page of *The New York Times*

the next day.

One of the astronauts aboard the Mir space station pulled the wrong cable, disabling the guidance system that was keep-

ing the solar cells pointed at the sun.

Separately, a Network Solutions technician ignored warning messages from the organization's automated systems and distributed corrupted master data files for the Internet Domain Name System.

Meanwhile, backhoe operators in at least two parts of the country cut through major fiber cables carrying large amounts

of Internet traffic.

The question is: If no one had told you about these problems, how much would you have known about them? Would you have even realized that they happened?

The scale of the directly affected population was quite small in the case of the Mir's onboard error, so few people would have known of the problem if the information was not propagated through the news media.

On the other hand, the *Times* article on the Internet disruptions described a very large impact of that error in judgment — "countless thousands or even millions of E-mail messages had been returned as undeliverable, while untold numbers of users had been unable to make contact with various World Wide Web sites." This seems like a biggie, but personally, I only had one message returned out of the dozens I sent that morning.

I am sure that Internet spammers and the operators of large mailing lists were heavily affected, but I doubt most Internet users even noticed anything was wrong.

In many cases, this was because their local computers or their local sites had already saved a temporary copy of the correct information. I suppose that in other cases, the network behavior fit the already-assumed Internet reliability model and would not have been noticed.

In any case, I would agree that quite a few people were actually affected by this error, though nowhere near Bob Metcalfe's "gigalapse" predictions.

But how about the fiber cuts? It seems that "fibertropic" backhoes are quite the rage these days. Hardly a day goes by without some note floating by of another cable being cut.

Even though the telephone network infrastructure is so much larger than the data network infrastructure, these cable cuts do affect data connectivity.

So why don't we see an almost constant inability to reach large parts of the Internet? Because all major Internet service providers and most of the other ones build redundancy into their networks. A failure in a single link in an ISP backbone may cause congestion on other links but generally does not cause unreachability.

Architecture does not always win out over a high klutz factor. But it is a testament to the Internet architecture that most people would not have known of these front-page problems if they had not actually been on the front page.

Disclaimer: Mercy be, no klutzes here at Harvard, so the above must be my meanderings.

*Bradner is a consultant with Harvard University's Office of Information Technology. He can be reached via the Internet at sob@harvard.edu.*



**Scott Bradner**

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# AltaVista sticks with Web searching

By Chris Nerney  
Littleton, Mass.

Most of the well-known Internet search engine vendors do not seem to have much to do with actual searching these days.

Check out the Web sites of Yahoo, Inc., Lycos, Inc. and Infoseek Corp., for example, and you are confronted with links providing news flashes, stock quotes, investment advice, horoscopes, street maps and information "channels" on a bewildering variety of subjects.

Last week, Excite, Inc. even added free e-mail to its eclectic mix of offerings.

AltaVista Internet Software, Inc., however, is resisting the urge to reinvent itself as a content provider. AltaVista officials said the Digital Equipment Corp. subsidiary will continue to focus solely on improving its Internet and intranet search services and products.

"We want to own search," said AltaVista Chief Technology Officer Louis Monier. "We're

not in the content business, which is a very different business. We just try to be very good at search, and that's our long-term plan."

## Easier to use

On Saturday, AltaVista unveiled a new interface for its Web site ([www.altavista.digital.com](http://www.altavista.digital.com)), designed to be easier to use while returning better-organized results to end users' queries.

The enhanced search tool employs customization tools and

a "refine" function that breaks results into topic categories created in response to the user's query. The latter feature, which Monier called "dynamic categorization," is similar to a feature touted by a new search engine company, Northern Light Technology LLC of Cambridge, Mass., which debuted last month.

AltaVista plans to release a commercial version of the dynamic categorization tool for intranets later this year.

Other search engine vendors also feature topic categories, but those categories are predefined.

AltaVista has made several

changes and additions to its popular search service this year in response to complaints that query results were overwhelming Web surfers with excessive and disorganized information.

In May, the company announced a deal with Net Shepherd, Inc. to offer software that would allow users to filter content from AltaVista searches.

And in February, AltaVista unveiled a feature called LiveTopics, designed to break query results into categories. The new dynamic categorization feature, which replaces LiveTopics, is "much easier to use," said an AltaVista spokesman. ■

# SkyMall lets e-commerce system fly

By John Cox  
Lowell, Mass.

If you want to do electronic commerce over the Internet, get ready to build or buy the network plumbing needed to tie in credit card, shipping and other back-end partners.

SkyMall, Inc. — best known for the catalog of catalogs found in nearly every airplane seat — has chosen to go with a third-party network service from LittleNet, Inc.

Today, more than 90% of SkyMall's sales begin after the air-

maintain point-to-point connections between each pair of participating partners.

How LittleNet makes all these connections is almost a case study for building commerce systems on the Internet.

LittleNet was created in 1995 by parent company Litle, Inc. The company was founded by Tom Litle, the creator of Direct Marketing Guaranteed Trust, a service provider that handled back-end processing for the direct marketing industry. LittleNet went live in September 1996

structure and management."

LittleNet lets SkyMall and others achieve this by packing data into messages that travel across the LittleNet network via Tibco, Inc.'s Rendezvous, a publish/subscribe technology designed to handle heavy transaction loads. Publish/subscribe messaging integrates applications triggered by an event, such as a SkyMall customer clicking on the "Enter" button to submit a Web transaction.

Tibco's software sends, or publishes, that action to every

calculation program, or with new LittleNet services, such as order processing and payment handling.

The result is a software infrastructure that lets LittleNet quickly interconnect different applications at different sites, a model ideally suited for emerg-

ing Web commerce.

"We're creating a medium that reaches new audiences," said Michael Maroti, LittleNet's vice president of marketing. "The future Web site won't be a single site — it will be multiple sites interconnected with extensive cross-linking." ■

# Netscape revenue jumps 80%

By Torsten Busse

Mountain View, Calif.

Netscape Communications Corp. last week posted second-quarter revenue of \$135.2 million, up 80% over the \$75 million in revenue reported for last year's second quarter.

Analysts said the growth is a sign that Netscape is faring well in its fight against Microsoft Corp. in the browser and Web server markets. And more good numbers could be ahead, given that Netscape recently released new editions of its client and servers software.

Although revenue grew for the period ended June 30, the company reported a loss of \$43.8 million for the quarter. The loss reflected a \$52.6 million nonrecurring charge related to Netscape's acquisitions of Digital Style Corp. and Portola Communications, Inc. Earnings for the

quarter were \$8.8 million before the nonrecurring charge, a 52% increase over earnings of \$5.8 million posted in the second quarter of 1996.

Netscape also announced management changes to streamline decision making at the company. Under the executive shuffle, Netscape cofounder Marc Andreessen will oversee the company's four product divisions. Each unit's general manager will report to Andreessen, said Netscape President and CEO Jim Barksdale.

Mike Homer, now in charge of Netscape's marketing efforts, also will oversee sales and services as the marketing and sales units are merged. Homer, Barksdale and Andreessen will form the executive committee.

Busse is a correspondent with the IDG News Service in San Francisco.

**SKYMALL TAKES WING ON THE WEB**

1 Via a Web browser, a customer browses SkyMall's online catalog and decides to buy an umbrella and golf clubs from two different vendors.

2 The selections are passed to LittleNet's Direct Commerce Network, which manages order taking, payment and fraud detection for multiple vendors whose products are offered via the catalog.

3 The customer's credit card is approved, and the order is confirmed.

plane passenger arrives home and calls a SkyMall service center. The company wants to increase its business by making it easy for customers to place orders by dialing in to SkyMall's Web site, which goes live Sept. 1.

Behind the scenes, customer orders will be forwarded to LittleNet's network, which offers a set of applications such as payment management and fraud checking. The network routes the transaction to credit card companies, catalog vendors and other relevant partners. LittleNet's network returns a status report on the customer's order to the SkyMall Web site.

Without a service such as LittleNet, SkyMall and other companies would have to build and

as a combination value-added network and Internet service provider. Today, about 1,000 merchants use LittleNet's payment service, its most popular offering.

"LittleNet is almost like electronic data interchange on steroids," said Ernie Schell, president of the Marketing Systems Analysis, Inc. consultancy. Schell is the man who brought SkyMall and LittleNet together.

"[LittleNet subscribers] can connect to each other as easily as pointing a Web browser to a URL," Schell said. "In the past, catalog companies had to micro-coordinate all their external communications. Now they can easily conduct business without the overhead of network infra-

application or remote system that is registered, or subscribed, to receive it. Each application does its work and returns its own event or data. The messaging software tracks this, incorporates what is needed and returns the results. By contrast, most client/server applications today use a request-response approach: The client sends a request to the server and waits for a response. The client then has to contact the next server and so on. This approach requires heavy client programming and often bogs down with high traffic volumes.

LittleNet has created a set of tools and libraries that lets its developers integrate Tibco's messaging software with third-party applications, such as a tax

## SmartSuite

Continued from page 33

of SmartSuite installations.

● Improved speech-recognition features from IBM that let end users dictate at a normal speaking pace.

Lotus' emphasis on administration will be appreciated by customers, said industry analyst Amy Wohl of Wohl Associates in

Narberth, Pa.

"Cost of ownership has become a mantra, so anything you can do to make administration easier makes people happy because it's less expensive," she said.

Lotus expects SmartSuite 98 beta testing to begin in November, with product shipment scheduled for the first half of next year.

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*Thin clients*

# Network computers taking root

H

However you define a network computer, more and more are showing up on corporate desktops.

As expected, the devices mainly are replacing Unix and mainframe terminals. But at most sites, end users also need to access Windows applications. And a few customers are eagerly awaiting the first wave of Java-based client applications.

Some companies are holding off on buying PCs or hoping to replace existing PCs with cheaper and more manageable network computers. But they tend to be companies in which Windows and Windows applications are not critically important. End users at these companies are likely to be running custom-built transaction processing or data entry applications.

Unlike Windows PCs, network computers rely on servers for systems software, applications and data. A better name for the devices is probably thin clients. Some vendors are pushing network computers that download and run Java applications, but there also are Windows terminals that access applications running on Windows NT servers. Increasingly, devices marketed as one or the other are combining Java and Windows access, along with links to Unix and mainframe applications.

## A good fit

Burlington Coat Factory Warehouse, Inc. is among the users giving network computers a whirl.

"We deliver computing with big Unix application servers and database servers," says Michael Prince, chief information officer at the Burlington, N.J.-based clothing retailer. "We like the thin client because it fits with our approach."

The company evaluated a range of network computers and recently chose Neoware Systems, Inc. (formerly HDS Network Systems, Inc.) as its supplier. Neoware's device lets end users access server-based Windows and Unix applications but also lets them run Java applications locally.

During the next year, Burlington Coat will install about 1,000 of the devices at its headquarters and data center, mainly replacing Unix terminals.

But even Burlington Coat's PC users are interested. "We have people voluntarily giving up their [Intel 386-based] PCs," Prince says. "Most people see the new hardware as a step up."

One reason for employees' willingness to relinquish their PCs is that the network computers access applications running on multiprocessor Unix servers, which deliver very fast performance. Another reason is that Burlington Coat is packing the network computers with memory and outfitting them with big, high-resolution color monitors. The result: high-quality graphics presentation and very fast graphics performance, Prince says.

In the future, Burlington Coat may introduce network computers into its 250 retail stores, which now use text terminals and satellite links to communi-

By John Cox

## Top five users and uses of network computers

### What professions will use network computers?

Receptionist 60%

Clerk 55%

Help desk 45%

Executive 43%

First-level manager 43%

Based on a survey of 50 users (multiple responses allowed).

### What applications would you consider accessing from a network computer?

Internet browser 76%

MS Office/BackOffice 64%

Database management system 54%

Accounting 44%

Development tools 40%

Based on a survey of 55 users (multiple responses allowed).

SOURCE: ZONA RESEARCH, REDWOOD CITY, CALIF.

cate with Unix servers in the data center.

"What's driving this move to store-based thin clients is we want to do more graphical, multimedia stuff — to communicate in pictures," Prince says.

For example, a Burlington Coat buyer could show selected store managers a picture of a new topcoat to gauge their level of interest before placing an order. Burlington may replace the satellite links with a frame relay network to boost bandwidth for such applications. The network computer then becomes an efficient way to display graphics.

Burlington Coat's network computers also will provide access to a new Web-based baby registry the company has developed. In addition, store employees for the first time will gain access to the corporate intranet for human resources and other information.

## Over the Rainbow

Another retailer, Rainbow Shops in Brooklyn, N.Y., is testing five IBM Network Station thin clients. These will be used as possible replacements for the character terminals used by 250 end users to access business applications running on AS/400 servers.

The company wants to provide a graphical user interface to its AS/400 applications, says Sam Metwaly, MIS director for the women's and children's clothing retailer. But Rainbow wants to do

this without the administrative and support headaches Metwaly has with the PCs company employees use to run spreadsheets and other applications.

"I have five network computers running, and I don't have to have anyone administering them — they just work," Metwaly says. As he explains this, a user enters Metwaly's office and says her PC has frozen. Metwaly tells her to check with a technical support staffer. "But I know he's going to have to reset the PC," Metwaly says.

IBM's Network Station plugs into Ethernet or token-ring LANs, uses a PowerPC processor, has 1M byte of video memory and between 8M and 64M bytes of memory. It includes connectivity software for mainframe, AS/400 and Unix application access, a Netscape Navigator Web browser and support for Java applications and Lotus Notes.

Rainbow's network computers connect to the AS/400 via terminal emulation programs. Buyers and distributors can pop up five or six separate windows and run different jobs or inquiries at the same time, Metwaly says.

The results have been so promising that Rainbow is trying to hold off on buying new PCs while it waits for a Java graphical front end to its retail business software.

## Java junkie

The emerging generation of Java-based office applications is part of the reason E.D. Smith & Sons, Ltd., a food manufacturer in Winona, Ontario, is testing an IBM Network Station with its AS/400-based business application suite. The company is using an early test version of Lotus' Java-based SmartSuite office applications, says Beverly Russell, director of information services.

"My plan is to replace Microsoft Office with Lotus SmartSuite," she says. "The Java version is aimed at my low-end users, which is fine, because lots of them do just simple spreadsheet and word processing. It's just an incredible waste to add a high-performance PC and applications just so you can add one plus one."

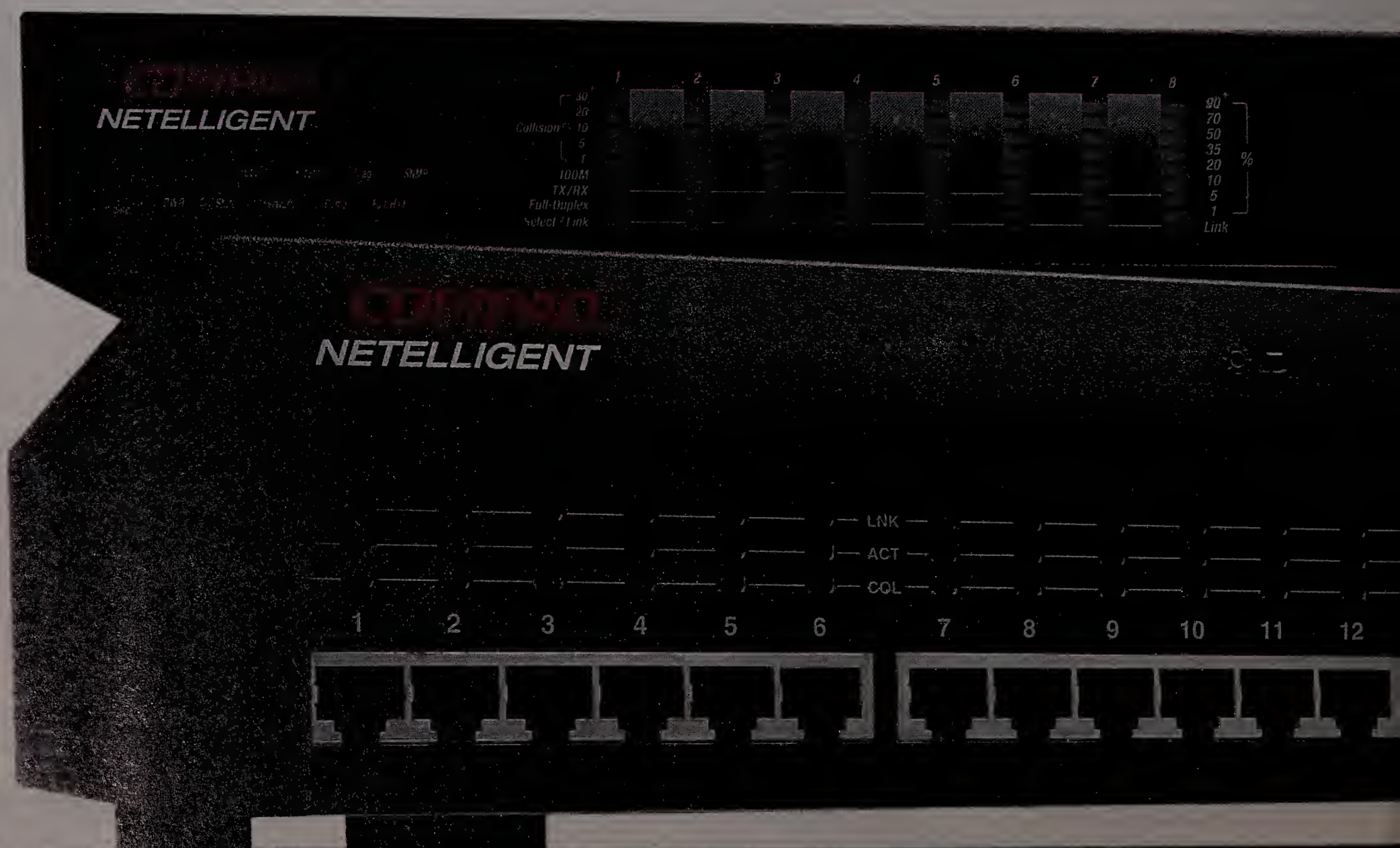
But Java is not an attraction for every company. Bell Mobility Cellular, a Toronto cellular service company with approximately 1 million customers, is adopting a Windows thin client for its two big customer service centers. The company is giving end users with Pentium- and 486-based PCs access to servers running Citrix Systems, Inc.'s WinFrame multiuser version of Windows NT.

The customer service representatives run a variety of custom Windows applications and access host-based data and transactions.

"Unless they're doing something really processor-intensive, our customer service reps don't have a clue that their application is not running locally," says Dave Fransen, director of production services for Bell Mobility. ■



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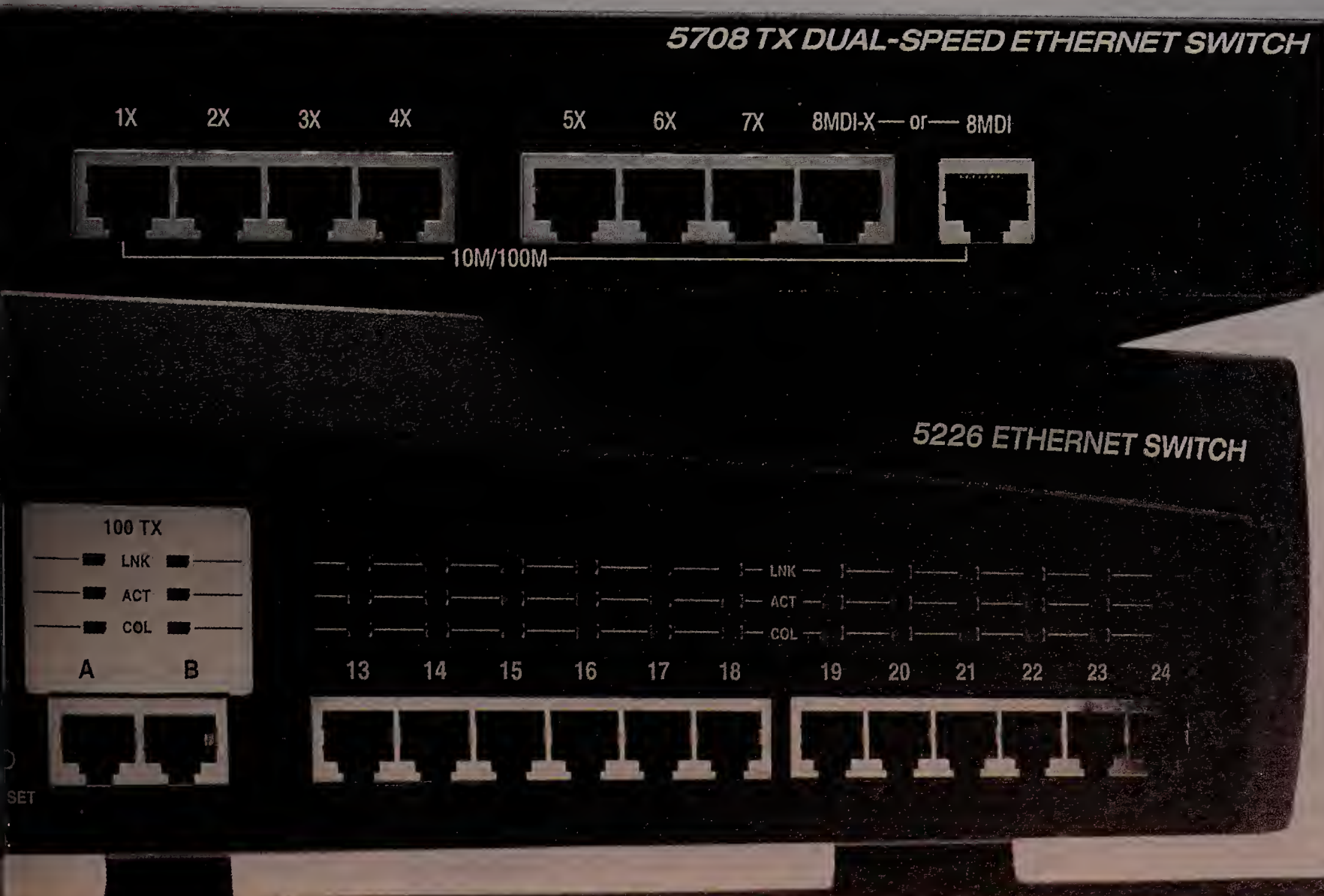
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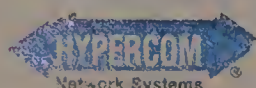
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# Technology Update

Covering: Evolving Technologies and Standards

## NETWORK HELP DESK

Ron Nutter, a Master Certified Novell Engineer and Groupware CNE in the Lexington, Ky., area, tracks down the answers to your questions. Call (800) 622-1108, Ext. 476, or send your questions to [rnutter@world.std.com](mailto:rnutter@world.std.com).

Several of my users pick up the incorrect time from my NetWare 3.12 server when logging on with Windows 95, and I can't figure out why.

I've reset the time and rebooted. If I go into Win95 without logging on to the server, the time is correct. If I log on to the server, I can see the PC get the wrong time — it's displayed in the DOS box while the system processes the logon script.

All Win95 users have Service Pack 1a and are using Microsoft Corp.'s NetWare Client. They have different PC brands and different models of the same vendor's network interface cards (NIC). I haven't found anything about this from my NIC vendor or on my TechNet CD or Novell, Inc.'s site, but I can't be the only one to have this problem.

Via the Internet

First, verify the time at the server console.

If you need to change the server time, you'll have the best luck setting the time at a DOS prompt on the server and then restarting the server.

You also can change the time using the fconsole utility when logged on as a supervisor.

If the time is correct on the server after making the change you have described, you may have found an API-level problem in the MS Client for NetWare.

You should be able to turn off the setting of station time in the MS Client for NetWare.

This prevents the client from getting its time from the server during the logon process.

You also can download the latest client from Novell's support.novell.com site and see if the problem persists.

To rule out the server as part of the problem, check the Minimum Update List on Novell's Web site to make sure you've applied the appropriate updates.

Lastly, you might try NICs from a different vendor.

## Pushing your MOM into an enterprise role

Growing message-oriented middleware usage drives need for improved management wares.

By Bob Spalding

As middleware proliferates across the enterprise, asynchronous, message-oriented products and architectures are becoming critical components in building multitiered client/server applications.

The movement is driving network administrators to put an increased emphasis on network management for message-oriented middleware (MOM) infrastructures.

MOM is a specific class of middleware that operates on the principles of message passing and/or message queuing. In general, MOM is characterized by a peer-to-peer distributed computing model supporting synchronous and asynchronous communication between distributed computers.

MOM generally provides high-level services, multiprotocol support and other systems management services. It creates an infrastructure to support reliable, scalable and performance-oriented distributed applications in heterogeneous network environments.

To understand MOM's role in enterprise computing, we first must review the simple database client/server model of the late 1980s and early 1990s. The models were inherently challenged with bandwidth, routing and synchronization problems as multiple-client programs attempted to utilize limited server resources.

The evolution of the application server provided additional challenges, such as scalability problems, serial routing to database servers and a single point of failure. The situation required a more flexible solution if enterprises were going to move to multitiered client/server applications.

The answer was to communicate between applications via messages and to provide each processing node with a queue to track, prioritize and process application-to-application requests.

The architecture also deliv-

ered the flexibility of peer relationships, enabling the development of routing dynamics and optimization, and increasing the application's reliability and availability. Asynchronous MOM offers these advancements to the client/server programming arsenal.

sources become critical in identifying performance problems. An open window must exist into the MOM environment. Network administrators will be frustrated using tools that have no relationship between network resources and middleware connections.

Managing dynamic network

hancement of the infrastructure. Collection and summarization of heterogeneous activity logs provides a foundation with which to analyze network performance in relation to middleware application performance.

MOM has become embedded in many servers, transaction processing monitors and other communications packages.

Not surprisingly, due to its network-dependent architecture, Internet environments will be the first to experience the benefits and challenges as embedded MOM technologies enable transactional services within existing legacy systems.

Asynchronous middleware solutions are being implemented today.

Although used in many cases to integrate existing legacy and open environments, MOM is evolving to meet the challenge of true distributed applications. However, this is providing an increasingly complex set of network challenges.

Understanding the basics of middleware infrastructures and armed with basic management tools, network administrators and designers can play a key role in the success of their middleware software projects.

Middleware has changed the basic architecture and processing paradigms for the enterprise network.

MOM technologies will continue to drive a closer integration of network services and applications management.

Spalding is an industry research analyst with BMC Software, Inc. in Houston.

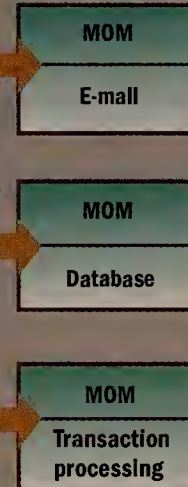
## HOW IT WORKS MOM management

Integrated message-oriented middleware (MOM) management applications can help users identify performance problems and control MOM systems. MOM managers are designed to help monitor transmission capacity and routes and identify bottlenecks and resource delays — all from a central console.

1 The client calls for information from e-mail, database and transaction processing applications.

3 The MOM application on the client aggregates results and builds them into a client MOM application.

2 The MOM on the applications responds with the required information.



4 The MOM manager tracks the entire process from initial client request to aggregation, looking for bottlenecks and queue logjams.

As middleware influenced the network, so does the network influence the development of middleware infrastructure and the operation and management of its applications.

Initial network configurations must be designed and tested against production application and database dependencies.

Capacity requirements provide additional challenges as bandwidth restrictions, use of heterogeneous protocols and other network traffic, such as database middleware or SNMP, are taken into account.

### Checking on MOM

As production systems are rolled out, monitoring connections, queues and network re-

utilization before new systems settle into production usage and application logic becomes optimized requires a specific MOM monitor.

MOM management tools should have the ability to monitor transmission capacity, routes and loading factors.

They also should be able to quickly identify bottlenecks and resource delays.

Ideally, the administrator will have a systemwide console to initiate and terminate middleware connections, queues and resources because systems and network management will overlap usage in this area.

Gathering information about middleware environments provides valuable insights into the performance and potential en-

### Need information?

Let *Network World* provide a quick primer on an important or emerging technology. If you have an idea for Technology Update, contact Michael Cooney by phone at (508) 875-6400 or e-mail at [michael\\_cooney@nww.com](mailto:michael_cooney@nww.com).





## A challenge to the top executives in the Gigabit Ethernet market

**I**n June, I asked readers to choose the companies they wanted to see in the Gigabit Ethernet Face-off I'm convening at the Atlanta NetWorld + Interop conference in October. To be precise, this 75-minute presidential-style debate will begin at noon on Thursday, Oct. 9.

Network managers, analysts and plenty of enthusiastic PR people sounded off in droves, citing 18 companies that play in this nascent market in one way or another.

But the leaders of the pack, and the participants in this face-off, will be Bay Networks, 3Com, Alteon Networks, Extreme Networks, Prominet and Foundry Networks.

I'm asking the CEOs of those companies to commit by Aug. 8 to send their top technical representatives to take part in the face-off. Of course, any company has the option of sending its CEO. If I don't get a commitment from any of the companies by then, I'll move down the list to the next top vote-getters, Cisco and Packet Engines.

Because I can only accommodate a limited number of participants, I selected the top two vote-getters among the traditional equipment suppliers (Bay and 3Com) and the four most-often cited Gigabit Ethernet start-ups.

I'm giving more weight to the start-ups here because they're push-

ing the innovation in this market, and the big boys have lots of other opportunities for getting their messages out.

The goal of the face-off is to help readers get beyond the hype surrounding Gigabit Ethernet and understand the real differences in strategy among key players.

The face-off will examine the role of Gigabit Ethernet vs. ATM and shed some light on how established firms such as Bay and 3Com plan to integrate the technology into their portfolios. We'll also learn how these start-ups think they can survive competing against the industry's giants.

We'll see, for example, how much mileage Alteon can get from its unique server-switch approach.

In the debate, the vendors will handle tough questions from a special panel I'm assembling, but they'll also get to grill one another.

Best of all, they'll face questions from readers in the audience. The format will be similar to that used in my Switching Showdown at ComNet '97 in February that drew more than 600 attendees.

The lineup is set, the challenge issued. Bay, 3Com, Alteon, Extreme, Prominet and Foundry: Are you in?

*John Gallant, editor in chief*

[jgallant@nww.com](mailto:jgallant@nww.com)

*Telecom Regulation • Martha Buyer*

## Keep those rule makings from sneaking up on you

**L**ast month when I opened my phone bill, I noticed a line on the NYNEX portion labeled "Network Access Charge." The dollar amount was zero, but I was nonetheless surprised that NYNEX had already added this line when the Federal Communications Commission had not yet approved any change in the fee structure.

Within days, NYNEX had its wish: The FCC decided that small business and residential users with more than one line would be assessed additional fees to support certain mandates contained in the Telecommunications Act of 1996. These charges will start showing up on your phone bill this month.

If you've got more than one line at home or at work, the additional fees will increase your subscriber line charge by 10% to 50%, depending on your location and service provider. Residential and small business users with one line will not be affected by this ruling. So while my bill stands to increase significantly because I maintain two lines at home, my neighbor will be paying nothing to support the same mandates.

The real kicker is that at the same time small business and residential multiline users are paying more for the same services, the local phone companies will be paid less in per-minute access fees by their biggest customers: the long-distance carriers. Guess who's making up the difference?

So what is this really all about? Among the Telecommunications Act of 1996's many provisions is one that requires schools and libraries in traditionally underserved markets — primarily poor urban and rural areas — be wired for Internet access. The additional fees assessed to multiline users are intended to cover the cost of this mandate.

However, it's interesting to note that while the act makes provisions for the wiring, it makes no similar provision for the equipment that will be connected to the freshly run cable. Recently, Microsoft Chairman Bill Gates and his wife, Melinda French Gates, have announced that along with Microsoft, they have created a foundation to provide computer equipment to many of the schools and libraries targeted for upgrading by the telecom act. Oracle CEO Larry Ellison also has committed to supplying computer equipment to schools.

So the act requires that the concept of universal service become a

reality. Its drafters just didn't bother to address how the wires are to be used and in what useful equipment — provided by what source — they will terminate. Perhaps Congress hoped all along that Gates, his wife and company would step in as a veritable benevolent "Batfamily," ready, willing and able to provide what a needy Gotham City requires and is unable to provide for itself.

While it's too late to do anything about the latest rule making that affects our phone bills, it's not too late to be informed about other changes coming down the pike.

One such change involves identifying methods of financing mandates set forth in the telecom act, including provision of universal service. You can send your comments about this to the FCC's Common Carrier Bureau, or read the comments of others, at [www.fcc.gov/ccb/comments.html](http://www.fcc.gov/ccb/comments.html).

In addition, the Internet Access Coalition has a well-organized Web site ([www.internetaccess.org/intro.htm](http://www.internetaccess.org/intro.htm)) that is a gold mine of information, not only on the organization itself, but also on the issues that affect Internet access for everyone. Given that Internet usage has had a major impact on the present telecommunications network, rest assured that the most dramatic change is yet to come.

As sophisticated telecommunications consumers, it is our responsibility to stay well informed about the structural, organizational, legal and financial changes driven by the breakneck speed of technological development. Stay tuned for further updates.

*Buyer is a telecommunications attorney and consultant in East Aurora, N.Y. She can be reached at (716) 652-4413 or via the Internet at [telcomlaw@aol.com](mailto:telcomlaw@aol.com).*

## MESSAGE QUEUE

Send letters to [nwnews@nww.com](mailto:nwnews@nww.com) or John Gallant, editor in chief, Network World, 161 Worcester Road, Framingham, MA 01701. Please include phone number and address for verification.

### Separate standards

Your article "DSL standard promises to force T-1 prices down" (July 7, page 1) states that the proposed high-bit-rate digital subscriber line 2 (HDSL2) standard recently developed by PairGain Technologies, ADC Telecommunications and Level One Communications is based on technology from Adtran. This is incorrect.

Adtran's proposed standard for HDSL2 was a particular implementation of a technology called partially overlapped echo canceled transmission.

The HDSL2 standard developed by the PairGain-Level One-ADC team is also based on overlapped transmission.



# IBM's Super Fast Token Ring: An enticing proposal

**L**ong-suffering token-ring users now are being rewarded for the stoic patience they've shown over the past two years, when all LAN-related innovations appeared to be exclusively Ethernet-oriented.

First, companies such as Cisco, 3Com and Olicom galvanized the token-ring community with announcements of 100M bit/sec Fast Token Ring solutions (NW, May 26, page 1). Now IBM, the undisputed king of all things token ring, is hoping to rejuvenate its networking business with a tantalizing new standard and products for 128M bit/sec "Super Fast" Token Ring.

Given the current tsunami of 100M bit/sec Fast Ethernet endorsements, many users will think, at least initially, that 128M bit/sec token-ring solutions are not only irrelevant, but possibly even irreverent.

Not so. If anything, IBM's timing, assuming it can deliver some stable products by this time next year, is quite good.

Though many token-ring users have seriously contemplated migrating to Fast Ethernet over the past year or so, few have undertaken the grueling and disruptive task of changing network interface cards (NIC) on PCs across the board and revamping hub and switch infrastructures.

With switched token ring still meeting the bandwidth needs of most token-ring configurations, wide-scale migration to Fast Ethernet or even ATM at the desktop and workgroup level was always expected to occur in the 1998 to 1999 time frame.

Super Fast Token Ring is an enticing migration option — not just for token-ring users but even for some discriminating Ethernet users. If IBM ensures that street prices — if not initial list prices — for 128M bit/sec token-ring solutions, such as NICs and hub ports, do not exceed those of equivalent Fast Ethernet schemes by more than 20%, 128M bit/sec token ring will prove to be the best value for the money when it comes to LAN bandwidth.

The real difference between Fast Ethernet and Super Fast Token Ring is not just 28M bit/sec. For a comparable amount of bandwidth, token-ring solutions provide better throughput, particularly in shared-bandwidth LANs with a large number of users. The larger block sizes token ring supports translates into a palpable improvement in the response times of high-volume data transfers, including Web page loading and updating.

In shared-bandwidth configurations, token ring's capture-and-release-based deterministic access scheme also is considerably more efficient than Fast Ethernet's contention-based access method, which provides more productive bandwidth per user across the LAN.

In an average shared-bandwidth configuration, Super Fast Token Ring is likely

to provide each user with at least 10M bit/sec more bandwidth than Fast Ethernet — for roughly the same cost.

Such a proposition, even when one factors in the risk of Super Fast Token Ring being an unproven technology, has to be music to token-ring users' ears. Network managers from Ethernet shops also may stop and consider the potential advantages of the token-ring approach — especially if they have seen firsthand how Ethernet's contention-based access severely degrades performance as traffic volumes increase.

So don't arbitrarily dismiss 128M bit/sec Super Fast Token Ring on the grounds that it's too late.

And don't equate Super Fast Token Ring to IBM's ill-fated attempts to popularize 25M bit/sec ATM to the desktop. With 25M bit/sec ATM, IBM — even with its \$495 per-user pricing of last year — got the price/performance criteria wrong, especially compared to that of Fast Ethernet.

With Super Fast Token Ring, one hopes IBM will get the street prices right by the time products are ready to ship.

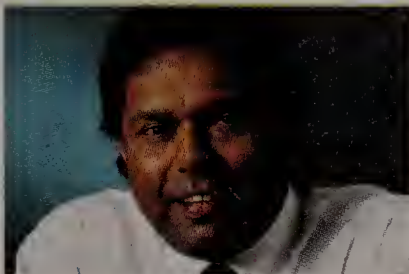
But street price, though key, is not going to be the only potential impediment to the success of 128M bit/sec token ring. IBM, despite its considerable clout, cannot be seen as the only major vendor providing 128M bit/sec token-ring solutions, lest they be labeled proprietary. Today's networking users, understandably, abhor proprietary solutions.

So it's imperative that IBM get other major vendors to actively endorse and promote 128M bit/sec token-ring. This could prove to be somewhat problematic given the current euphoria surrounding Fast Ethernet and Gigabit Ethernet. But IBM has to persevere and, if necessary, encourage the creation of some 128M bit/sec start-ups.

Super Fast Token Ring could be a very compelling solution for next-generation, shared-bandwidth or switched LANs. Whether you're currently using token ring or Ethernet, keep an open mind about this new technology and judge it purely on its functionality, price and stability.

Just remember: When it comes to bandwidth availability and utilization, token-ring users to date have done much better than their Ethernet brethren.

*Gurugé is an independent consultant specializing in internetworking and IBM network architectures. He can be reached at (603) 878-1303 or via the Internet at [aguruge@mcimail.com](mailto:aguruge@mcimail.com).*



technology because it was the obvious choice to solve the technical challenges imposed by crosstalk from asymmetric DSL (ADSL).

The overlapped transmission concept was developed and embodied in the Discrete Multi-Tone ADSL standard, which was approved several years ago.

In fact, the PairGain-Level One-ADC team presented variants of this overlapped transmission technology to the ANSI T1E1.4 committee back in November 1996, prior to Adtran submitting its proposal.

The article should have stated that the two proposed standards for HDSL2, recently submitted to the ANSI T1E1.4 committee, were based on similar principles but developed separately.

*George Zimmerman  
Chief scientist*

*PairGain Technologies  
Tustin, Calif.*

## ATM is not DOA

I am puzzled by the tone of some of your recent articles ("The FORE forecast: It'll take more than ATM," June 23, page 17; "The shrinking world of ATM," June 30, page 1) and to a lesser degree, the editorial pieces by Scott Bradner ("Who is wearing the blinders?" June 23, page 49) and John Gallant ("ATM's real problem," June 23, page 52).

When Vanderbilt University decided last spring to go with an ATM backbone connecting

edge Ethernets, we thought the fruits of the ATM Forum's labor might be a bit green but would probably be ready for harvest at just about the right time.

Now only slightly more than a year later, ATM is being called a dustbin technology. Even on Internet time, that's a pretty short ride.

By the end of this summer, Vanderbilt will have almost 100 Ethernet switches serving more than 5,000 switched 10Base-T ports in the residence halls. In addition, we will have another 3,000 ports of shared Ethernet on the rest of campus. All of it is running fairly smoothly over an ATM backbone.

I believe this makes us one of the larger LAN Emulation sites to date, and all run by a staff of four engineers and two technicians who didn't know ATM from R.E.M. two years ago!

Fore's ATM/Ethernet solu-

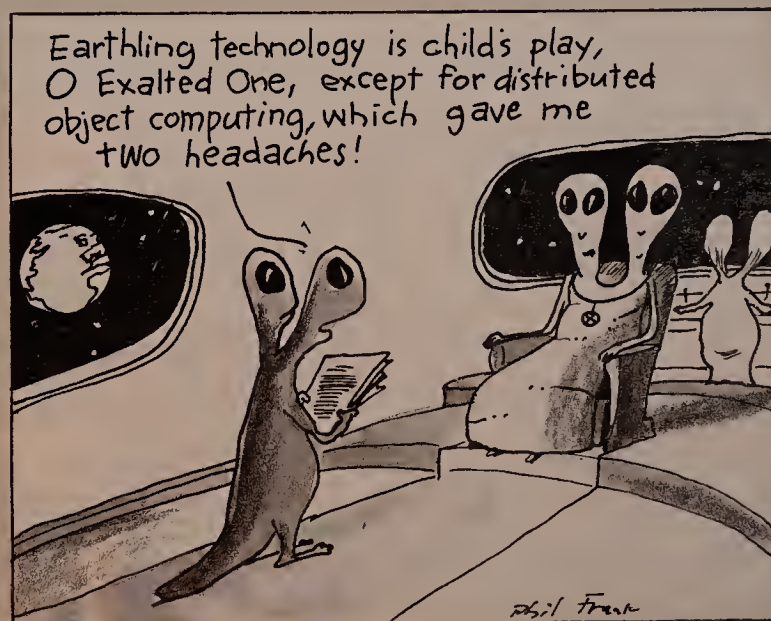
tion is doing the job for us today and gives us an upgrade path that Gigabit Ethernet has yet to demonstrate.

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*John Brassil  
Network manager  
Vanderbilt Academic Computing  
and Information Services  
Nashville*

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# SMARTEN UP

*Desktops and servers don't have to play a role in emerging intelligent networks, but it's to your advantage if they do.*

By Mary Petrosky

**N**etworks are about to become more intelligent beasts, able to deliver quality of service (QoS), routing, security and other services on a per-user, per-application basis, with centralized policy-based management schemes to help you control it all. But vendors are offering two fundamentally different approaches to getting you there: One involves adding intelligence to desktops and servers, and the other requires potentially major upgrades to routers and switches. Vendors, including 3Com Corp. and NetManage, Inc., want to supply the software that gives desktops and servers the smarts required to deliver these services. Alternatively, vendors such as Cisco Systems, Inc., Ipsilon Networks, Inc. and even start-ups such as Extreme Networks, Inc. offer a "proxy" approach, using routers and network layer-savvy switches to peer into packets to identify data flows. Once a flow is identified, services such as QoS and security can be applied and policy-based management can be used. The latter enables you to dictate



ahead of time the services each user or application should receive.

Each approach has pros and cons you'll need to understand to make the right choice for your organization. Enabling services down at the desktop can provide greater visibility into the applications in use, allowing services to be applied more precisely. Depending on the desktop scheme, services can operate without regard to the network protocols in use. On the downside, you must upgrade software on every desktop and server you want empowered with services and controlled under policy-based management.

In contrast, proxy schemes let you limit changes to network equipment. However, the proxy approach is likely to cost more because you may need to upgrade routers and switches as well as software. And, at best, most proxy schemes support only two network protocols — IP and IPX.

For organizations that oppose the idea of outfitting desktops with network intelligence be it for fear of distributing control functions or simply the desire to avoid upgrading all those PCs — the proxy approach is a viable way to smarten up the network. But all things considered, the desktop approach will give you a finer degree — of control over the exact network services each user or application can employ.

## 3Com's TranscendWare

3Com is empowering desktops and servers via its TranscendWare software. TranscendWare encompasses various software components, including 3Com's management tools, security and QoS class of service (CoS) capabilities. It's through TranscendWare that 3Com will deliver policy-based management.

Pieces of TranscendWare run on the company's network hardware and, importantly, on its network interface cards (NIC). TranscendWare software run-

*Continued on page 48*

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Continued from page 45

ning on NICs will indicate service requirements to network hardware, such as 3Com's High-Function and Boundary LAN switches and various routers, which are also running elements of TranscendWare.

3Com has dubbed its NIC driver code

At that time, the DynamicAccess software on a user's NIC will communicate with the policy server to download the user's policy table to the NIC. 3Com has said it will use the Lightweight Directory Access Protocol (LDAP) for communication between NICs and a policy server.

tionality to an NIC.

3Com understands its services need to be hardware-independent. Rather than bundling software on its NIC drivers, the company is looking to partner with server vendors, operating system vendors and even developers of programming languages to deliver the appropriate TranscendWare components.

In the meantime, customers with 3Com NICs have the option of exploiting these services via the DynamicAccess software. However, this entails updating driver software on every desktop and server you want empowered — not a pleasant thought.

3Com is attempting to ease the upgrade with its Auto-Update tool, which allows for the centralized installation of end-system software. Unfortunately, Auto-Update is tied to 3Com's distributed Remote Monitoring (dRMON) Edge Monitor System. For Auto-Update to work, customers must have dRMON software running on desktops and have deployed Edge Monitors, which monitor individual multicast domains.

On the plus side, the fact that users download their policy information only once a day will limit the amount of traffic associated with policy-based management. Other vendors, such as Cabletron Systems, Inc., are looking to use a sort of "Mother, may I?" approach, whereby desktops and network gear query a policy server as needed. Such an approach clearly would entail more network traffic.

porate customers. The company is pursuing OEM deals with leading providers of routers and switches — the usual suspects — but to date has announced only an agreement with Ascend Communications, Inc. However, other deals are in the works, and additional announcements are expected this summer.

NetManage's PMA consists of several elements, including a data packet analyzer called the Wedge, filters that identify which traffic to act on and plug-in services that execute policies associated with specific network traffic. Plug-ins provide services such as bandwidth controls, QoS/CoS signaling, security filters and encryption. PMA also defines an API so customers and third parties can define plug-ins (see graphic, left).

The Wedge is protocol-independent, Windows-based software that's installed just above the NIC driver. It identifies applications by the Windows Sockets calls they make, rather than by TCP port numbers.

Once you define the policies that should apply to an endstation, the Wedge implements the policies. NetManage is leaving it up to its OEMs to decide how to implement policy servers and what protocol to use for communication between desktops or servers and a policy server.

Vendors are likely to leverage directory services, such as Novell Directory Services or Microsoft Corp.'s upcoming Active Directory, in building policy servers. Some vendors will use the directory service to store policy information and, like 3Com, use LDAP to access that data. Others will pull directory information into their policy management application. Cabletron and IBM are among the companies that have defined a protocol for communication with a policy server. Fortunately, both companies are working with the Internet Engineering Task Force to standardize such a protocol.

#### PMA pros and cons

PMA has promise because it's hardware- and vendor-independent. As such, PMA potentially can deliver a set of policy-based management services that cut across network vendor lines. Broad adoption of such a vendor-neutral technology could make widespread use of policy-based

management and related services more feasible.

Although we expect several vendors to use NetManage's PMA technology, no vendor has announced such plans. Given that, it's unclear how the Wedge and related software would be distributed to desktops. Presumably, OEMs would address this issue with a software distribution tool — ideally one that's already available in popular systems

### HANDICAPPING THREE APPROACHES TO BUILDING AN INTELLIGENT NETWORK

3Com TranscendWare	NetManage Policy Management Architecture	Cisco and Ipsilon proxy approach
<b>Pros</b> <ul style="list-style-type: none"> <li>▲ Some functions available now for 3Com NICs</li> <li>▲ Policy info is downloaded when PC boots, limiting amount of policy-related traffic flow</li> <li>▲ Ensures high-priority traffic is delivered, even in the face of congestion</li> </ul>	<ul style="list-style-type: none"> <li>▲ Open approach, both hardware and vendor independent</li> <li>▲ Lets you control traffic patterns, such as limiting bandwidth or access times for PointCast</li> <li>▲ Could ease policy interoperability if multiple vendors use it</li> </ul>	<ul style="list-style-type: none"> <li>▲ No need to upgrade end-system software</li> <li>▲ Available today</li> <li>▲ Limits policy-related traffic to network devices</li> </ul>
<b>Cons</b> <ul style="list-style-type: none"> <li>▼ Works only with 3Com NICs, although the search is on for partners</li> <li>▼ Requires updates to all NIC drivers</li> <li>▼ Ignores policy information unless the network becomes congested</li> </ul>	<ul style="list-style-type: none"> <li>▼ Ascend is the only one partner so far; others said to be imminent</li> <li>▼ Requires updates to desktop software</li> <li>▼ Unclear how much net control traffic will be generated — will depend on each vendor's implementation</li> </ul>	<ul style="list-style-type: none"> <li>▼ May require expensive router and switch hardware/software upgrades</li> <li>▼ Handles only IP and IPX protocols</li> <li>▼ Less granular control than desktop</li> </ul>

DynamicAccess. It is the vehicle 3Com uses to deliver its Priority Access Control Enabled (PACE) CoS technology, and 3Com has committed to delivering Fast IP support this way, as well. Fast IP, which is based in part on the Next Hop Resolution Protocol (NHRP), will enable two systems on different virtual LANs to communicate directly, without going through a router. In addition, DynamicAccess software will enable a desktop or server to communicate with a policy-based server.

Ideally, applications should make explicit QoS/CoS requests. However, because few applications support QoS/CoS, vendors have had to develop workarounds. To provide CoS support, 3Com's PACE software looks at information such as TCP port numbers inside each packet to determine the type of application in use and assign it a priority. Using PACE, desktops and servers infer which packets are associated with a specific application and what CoS an application needs.

#### Policy controls

Having an application or a NIC driver dictate what resources it wants from the network clearly is not a good thing. Such unilateral behavior on the part of even a handful of desktops and servers could quickly consume all network bandwidth.

This is where policy-based management comes in. Using TranscendWare, software on the endstation will examine data coming from applications and append a priority flag to each packet, based on policy information gleaned from a policy server.

Users will receive their policy information each morning when they boot up.

Keep in mind that a policy-based management scheme does not eliminate the need for applications to make QoS/CoS requests. Rather, it allows you to determine when and for whom these requests are appropriate.

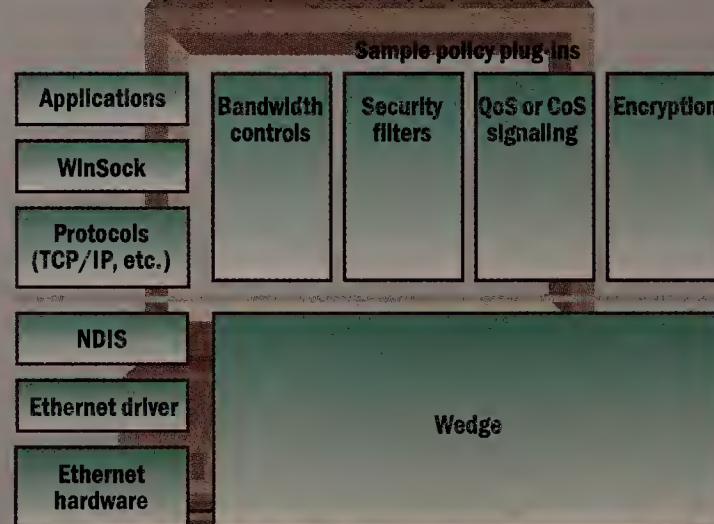
3Com is taking what it calls an "adaptive" approach to CoS support. That is, CoS information will come into play only when a network is congested. 3Com equipment on the network edge and core will be preprogrammed to recognize priority levels. When congestion occurs, the systems use TranscendWare software to ensure that data is handled according to the globally defined priorities. You'll be able to define the congestion thresholds that trigger the switches to begin prioritizing traffic. Only the devices experiencing congestion will prioritize traffic.

#### TranscendWare pros and cons

3Com's approach of supporting services and policy-based management via its DynamicAccess software has the benefit of imminent availability. Some functionality, such as PACE support, is available now, while other capabilities, such as Fast IP, will be available later this year. However, the fact that this functionality is tied to a specific piece of hardware — the NIC — limits its usefulness. Although many organizations use 3Com NICs, few use them exclusively. And many organizations will balk on principle — and rightly so — at tying desktop func-

### THE WEDGE HOLDS THE KEY TO NETMANAGE'S POLICY MANAGEMENT ARCHITECTURE

NetManage's Wedge is software that appears as an NDIS MAC driver to all protocol stacks and as a protocol stack to NDIS. As such, the Wedge captures all packets entering or leaving the PC. It then applies predefined packet filters and, when it identifies a match, passes the packet to the appropriate plug-in service.



#### NetManage's PMA

Like 3Com, NetManage takes a desktop-based approach to the delivery of QoS/CoS, security and policy management with its Policy Management Architecture (PMA). Unlike 3Com, NetManage has a solution that's independent of desktop hardware.

Also unlike 3Com, NetManage is working to deliver its software via OEMs, rather than distribute it directly to cor-



management packages.

NetManage also has a fundamentally different philosophy about QoS/CoS support than 3Com. Whereas 3Com ignores priority information unless the network

apply policies regarding QoS/CoS, security and other services to it. Cisco's NetFlow Switching and Ipsilon's IP Switching are examples of flow-based schemes.

As we noted earlier, another drawback to the proxy approach is that it can only handle IP, and maybe IPX, traffic. Although IP traffic is increasing on many enterprise networks, it certainly is not the only protocol supported. Nor do TCP sockets provide a way to identify all applications, so it may not be possible to apply services to all applications.

operating systems. Likewise, some organizations simply may prefer to keep desktops "dumb" and control services through network gear.

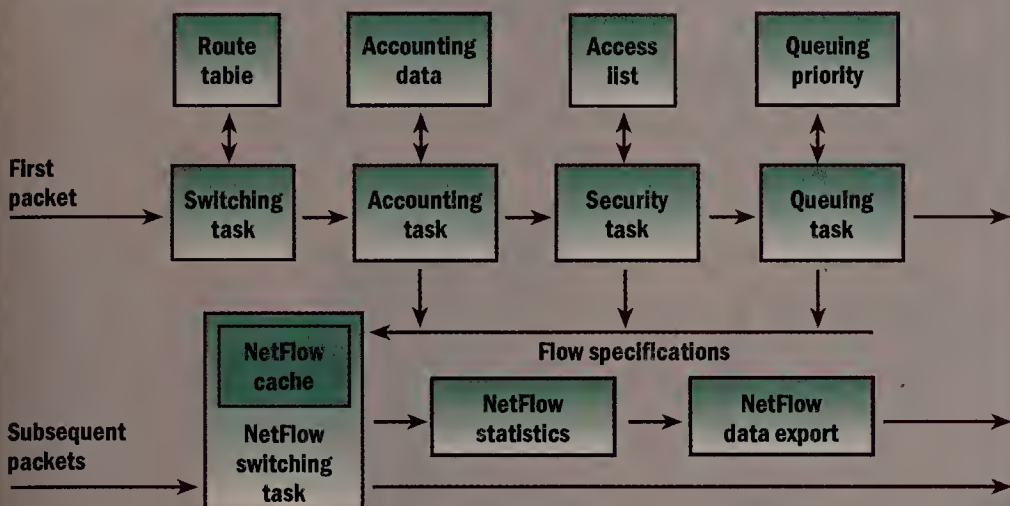
So all of these approaches likely will be with us for the foreseeable future. Whether you choose to empower desktops or use the proxy approach will depend on your application requirements as much as your IT philosophy.

Organizations that want to run QoS-sensitive applications, such as videoconferencing, or that need tight security will want to empower desktops with these services. In so doing, you'll get a more granular level of control over services, the ability to dictate exactly who can do what.

Alternately, organizations that want QoS primarily to boost network backbone performance or are concerned about security as it relates to backbone and WAN traffic will find the proxy approach suitable. Whatever approach you take will bring a higher level of intelligence to your network.

*Petrosky is a senior analyst with The Burton Group, an information services firm that provides in-depth technology analysis. She can be reached in her San Mateo, Calif., office at (415) 572-0560 or via the Internet at petrosky@tbgroup.com.*

## INSIDE THE PROXY APPROACH: CISCO'S NETFLOW



With NetFlow switching, the first packet in a flow is handled in a conventional fashion, with tasks such as route determination and queuing being applied. Once a flow is identified, the information about the flow is cached and subsequent packets are forwarded more directly. Statistics and other information about flows also can be exported to network management and accounting applications.

SOURCE: CISCO, SAN JOSE, CALIF.

becomes congested, NetManage believes policy-based QoS/CoS that's "turned on" all the time will ultimately shape users' behavior. For example, if you want to limit PointCast traffic to certain times of day or restricted amounts of bandwidth, users will adjust their usage patterns accordingly.

3Com's adaptive approach to QoS/CoS ensures that high-priority traffic is delivered, even in the face of congestion. And it does so in a fashion transparent to users. However, some organizations may prefer to actively discourage certain types of network activities or at least limit them to certain times of day.

For example, it may be a perk to allow users to download pictures from Mars — as long as they do it before 8 a.m. or after 6 p.m.

One issue that remains outstanding is the amount of additional network control traffic the PMA approach will generate, because NetManage doesn't specify how policy information will be delivered to the desktop. That decision is left up to individual implementers.

## The proxy approach

Despite the appeal of policy-based management and services such as QoS/CoS, you still may be reluctant to touch desktops and servers. Fortunately, thanks to vendors such as Cisco and Ipsilon, and Gigabit Ethernet start-ups such as Extreme, it may not be necessary to upgrade end-system software.

What these vendors have in common is the ability to identify data flows. A flow generally is defined as a sequence of IP packets sent from a particular source to a particular destination, in which the source and destination IP addresses, ports and protocol in each packet are the same. Once they identify a flow, vendors can

Only routers and other devices operating at Layer 3 (so-called multilayer switches and routing switches) look far enough into packets to be able to identify flows, enabling them to act as proxies on behalf of endstations. In addition, routers and switches will be able to act as their own "client," making calls to services. For example, routers could use LDAP to communicate with a policy server.

One of the main drawbacks of the proxy approach is that it may require new hardware. And the hardware needs to be deployed widely enough to deliver the expected benefits.

For example, under Ipsilon's approach, services will be applied to flows only as they traverse IP switches.

Consequently, to get a specific set of QoS, security or other services applied to a flow end to end, you'd need IP switches end to end.

In contrast, NetFlow switching operates within one device, such as a Cisco 7X00 router or, more recently, the Catalyst 5000 switch. With NetFlow switching turned on, a device can identify flows and apply the appropriate QoS, security or other services to the first packet in that flow. All other packets in that flow are simply switched.

Although NetFlow provides a performance boost by eliminating the need to apply services to each packet in a flow, it's not an end-to-end system. It's more of a hop-by-hop approach in that each NetFlow device a flow traverses must first identify the flow, then apply the appropriate services.

In general, it makes more sense to apply policies and services once during a data transmission — whether at the point where the desktop submits the traffic to the network or, as Ipsilon does, at the time a circuit is established.

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# REVIEW

## 'Net Picks and Pans

*A quest for the best Internet tools starts with e-mail clients, newsreaders and browsers.*

by Lee Schlesinger

**W**elcome to 'Net Picks and Pans. From time to time, we'll use this space to point out products that can help you make the most of the Internet and intranets as well as help you steer clear of the ones to avoid.

In this first installment, we look at three Internet applications we couldn't do without: messaging, Usenet newsreaders and Web browsers for 32-bit Windows platforms.

Our conclusion? We haven't found the perfect e-mail client yet, but you won't find a better newsreader than Forté, Inc.'s Agent or a better browser than the latest version of Netscape Communications Corp.'s Navigator.



### E-MAIL CLIENTS: NOTHING FITS YET

It's tough to imagine lasting a day without e-mail. That's why it's so important to have a top-notch e-mail client. Too bad we haven't found one we can recommend without qualification since our move to Windows 95.

The story was different when we were running Windows 3.1. Back then, CommTouch Software, Inc.'s ProntoMail 2.0 did just about everything we wanted. Its configurable toolbar had buttons for operations we performed most often, enabling us to adjust message headers so we could see as much or as little as we desired and view select subsets of any folder.

However, ProntoMail 2.0 isn't a 32-bit application, and it can't understand Windows 95's long

file names. We figured an upgrade would build on the good things already in the product, but that wasn't entirely the case.

Some of the "improvements" in the Windows 95-based Pronto97 4.01 make it harder to use. No longer can you click on one button to choose a signature. Instead, it's one of two operations in a dialog window under Options. While you can still use keystrokes to quickly move a message to a folder, an interface bug forces you to press an arrow key before you can choose a folder name. You can configure the main toolbar, but not the one used when composing a message.

Not all the news is bad. The new version adds a great feature: the ability to take on multiple user identities without leaving the program, which comes in handy when you have to check mail in multiple accounts. All in all, Pronto97 comes closest to what we're looking for in an

e-mail client, but it isn't there yet.

Netscape's Messenger doesn't cut it, either. We don't like its two-panel display — you select folders from a drop-down box — and find its navigation toolbar inadequate and uncustomizable.

Qualcomm, Inc.'s Eudora Pro also falls short. On the plus side, it lets you have multiple personalities like Pronto97's multiple users, and it's got the most elaborate rules capabilities we've seen. But all of that is overshadowed by its interface, which we hate. It forces you to double-click a message to read it because there's no three-panel display or preview panel; it doesn't let you delete messages with the delete key while they're open for reading; and the menu organization is not intuitive.

We find Microsoft Corp.'s Outlook lacking, as well. Its interface is a confusing mess because the product tries to do many things in addition to messaging, but does none of them well.

### E-mail clients: What to look for

- Resizable three-panel display showing folders, message list and single-message preview
- Customizable toolbar
- Robust rules for filtering, moving and automatically deleting junk mail
- Multiple options for quoting original text in replies
- Support for rich content via HTML, but with the ability to turn it off
- Address book integration with Internet-based LDAP directories
- Drag-and-drop feature for moving messages
- Keystroke equivalents for common operations



### picks and pans



#### E-mail client

**Pick:** None

**Pan:** Microsoft's Outlook suffers from a horrible interface that fails to easily integrate messaging with the other functions it supports.

**Other notables:** CommTouch Software's Pronto97 ([www.commtouch.com](http://www.commtouch.com)) sports a well-designed three-panel interface, multiple user profiles and handy rules, but a couple of rough edges in the user interface need reworking.

#### Newsreader

**Pick:** Forté's Agent ([www.forteinc.com](http://www.forteinc.com)) tops the list with a logical interface and menu layout, good filters, and bundled e-mail and binary decoding.

**Pan:** None

**Other notables:** Anawave Software's Gravity ([www.anawave.com/gravity](http://www.anawave.com/gravity)) has better filtering rules than Agent and a bundled Image Gallery, but its menu choices are a bit mixed up, and it lacks a configurable toolbar.

#### Browser

**Pick:** Netscape's Navigator ([www.netscape.com](http://www.netscape.com)) is the state of the art in browsers.

**Pan:** None

**Other notables:** Microsoft's Internet Explorer ([www.microsoft.com](http://www.microsoft.com)) won't give Navigator a true run for its money until Version 4 is released.



Right now, we wouldn't give unhesitating approval to any of these packages for organizations planning a complete upgrade. However, we'll keep looking and revisit e-mail clients in a future 'Net Picks and Pans.



## NEWSREADERS:

### FORTÉ WINS A TOSS-UP

Slogging through reams of newsgroup postings for anything of relevance can be tedious and frustrating. While you won't go too far wrong with any of the free newsreaders out there, you'll get capabilities that are well worth the few bucks you'll spend on a commercial package.

Our favorite pick is Forté's Agent, with Anawave Software, Inc.'s Gravity coming in a close second. Agent has a much better interface, which outweighs the powerful features Gravity offers, including slightly better built-in rules, a facility for viewing postings that contain binary files or images and the ability to search a newsgroup.

Both packages include kill and watch filters. Kill filters skip messages that have components matching specified criteria, such as messages from known spammers. Watch filters highlight postings that meet your criteria.

Together, the filters help you weed out messages cross-posted to multiple newsgroups. Both packages also offer integrated e-mail, the ability to decode binary files and offline reading. Even though neither lets you pick newsgroups from a hierarchical list, Gravity will display only those groups that contain a specific string in their names. However, you still have to pick the ones you want to view from that list.

With Agent, you can apply kill filters to multiple newsgroups at once and purge cross-postings from your message list. With Gravity, you have to do this one group at a time, and you can't purge killed messages. If you don't want to see certain messages, you have to create a rule to discard them universally as they are retrieved; you can't do it manually thereafter.

Gravity's Image Gallery displays a list of decoded binary attachments and enables you to pick

the ones you want to view using an image viewer application.

Agent enables you to decode and view binary attachments with a single Launch Binary Attachment menu choice. Essentially, Agent places decoded images in a single directory and invokes a viewer application, but it has no functionality to manage them.

Gravity also offers a search utility, which Agent lacks, but it can search only one newsgroup at a time for postings with a specified string.

Agent includes a configurable toolbar, which Gravity lacks, and a menu system that's richer

## Newsreaders:

### What to look for

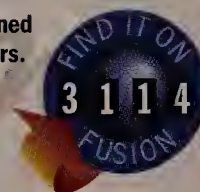
- Three-panel display for newsgroup list, message list and individual messages, with ability to position panels where you want them
- Customizable toolbar
- Buttons for quick access to common operations
- Ability to apply actions to multiple groups
- Search tools for newsgroup name or for a string within messages
- Hierarchical listing of newsgroups
- Automatic decoding of binary attachments
- Watch and kill filters
- Ability to view messages by thread
- Ability to hyperlink to URLs and e-mail addresses in messages
- Support for multiple signature files

and more logically laid out. You also can set properties for individual newsgroups or for all newsgroups with Agent.

For low-rent newsreaders, a good choice is Forté's Free Agent, which has most of the fea-

Go online to download the software mentioned here and get a list of free newsgroup servers.

[www.nwffusion.com](http://www.nwffusion.com)



tures of Agent. What you don't get are a spell checker; customizable toolbar; the ability to receive e-mail; kill, watch and cross-post filters; and the ability to decode base-64 Multi-purpose Internet Mail Extensions (MIME) attachments.

Netscape's Collabra is adequate if you're getting it free with Communicator. But you'll be a lot more satisfied if you download Free Agent.



## BROWSERS:

### BET ON NETSCAPE

There's no need to beat around the bush: The Navigator component of Netscape's Communicator suite is the best browser you can get today. As we pointed out in our review of Communicator last month (NW, June 16, page 8), Navigator's drag-and-drop bookmark interface, customizable toolbars and profiles, support for a broad range of standards and tight integration with other Internet tools puts it at the top of the browser heap.

What about Microsoft's Internet Explorer? It's true there are certain features in Explorer that Netscape doesn't support, such as VBScript. But savvy Web page designers won't use tools that require a specific browser to view their pages

## Web browsers:

### What to look for

- Comfortable user interface
- Hierarchical and customizable bookmark folders
- Customizable toolbar
- Support for frames, Java, JavaScript and Cascading Style Sheets
- Support for third-party applets via plug-ins or similar code

properly, so we don't see that as much of a plus. However, if you've standardized on Microsoft products, Explorer is the way to go because of its synergy with such offerings as FrontPage and Internet Information Server.

Since Explorer currently is a release behind Navigator, we may have to change our opinion when Version 4.0 comes out. The new version's promised integration with Windows 98 may be a compelling argument for users of that platform.

There are dozens of other browsers out there, but why bother? There's little they can do that the two powerhouse market leaders can't. ■

## COMING ATTRACTIONS

In upcoming 'Net Picks and Pans, we'll look at offline browsers, Internet search tools, shareware repositories, Internet Relay Chat clients and more. Let us know of any products in these categories that you'd like our opinion on. Likewise, feel free to suggest any other category we should look at. Send your suggestions to [reviews@nwffusion.com](mailto:reviews@nwffusion.com).

## Bonus Pick: Dial-up tool

If you access the Internet via Windows 95's Dial-up Networking communications utility, do yourself a favor and download Vector Development's free Dial-up Network Connection Enhancement (DUNCE) at [www.vecdev.com](http://www.vecdev.com).

Working as an invisible add-on to any Dial-up Networking icon, DUNCE is a big annoyance-saver. It connects to your host without forcing you to click the Connect button in the Dial-up Networking connection box. It transparently connects if you invoke an application that needs a connection established. It minimizes the Dial-Up Networking status box upon connection and transparently reconnects if you lose contact. Furthermore, at connection time, it transparently opens any applications you specify, which means you can check e-mail and view your home page just by double-clicking on the Dial-Up Networking icon.

If you need to store more than one Dial-up Networking profile or start more than four programs upon connection, you can upgrade to DUNCE Gold, which is now in beta and costs \$20.



## House-trained

Continued from page 1

The concerned public relations manager who agreed to let me sit in on this House Training, as it's called, politely informs me that House doesn't like latecomers. The PR manager suggests I wait until later that day to join another group of directors and vice presidents in a repeat of the New Bay Basics session on Effective Meetings.

House, who's been at the helm for a little more than half a year, is trying to remake Bay from the top down, personally overseeing the reeducation of his top executives before sending them

the 1994 merger of Silicon Valley-based SynOptics, Inc. and Wellfleet Communications, Inc., a product of Massachusetts' Route 128 technology region.

While Bay has grown and acquired companies, such as remote access vendor Xylogics, Inc. since its formation, it has not enjoyed the same remarkable success as high-flying rivals Cisco Systems, Inc. and 3Com Corp. during this bull market for network gear.

Bay's revenues are now roughly a third of its bigger competitors, thanks in part to the huge acquisitions Cisco and 3Com have engineered of late.

Bay's image has been badly



but not Bay employees.

### Difficult course ahead

Bay faces an uphill battle to regain customer confidence and Wall Street approval, in addition to defining a unique technology vision and executing it. And House's first tactic in that battle is to heat up Bay's melting pot. He wants to quickly blend the different cultures, to get "all the force vectors aligned and everyone going in the same direction," to quote the management-book lingo into which he occasionally lapses. He is training the trainers to impart his style — Bay's new style — of running a business to the rank and file.

### The classroom fills up

I am in my seat well before the 1 p.m. session gets under way. I ask Laura Jacobs — Bay's director of corporate training and communications who is helping House orchestrate these educational sessions — if it's all right to hang on to my Diet Coke. She hems a bit, but nods OK. "David will go over that in the session," she adds. Sounds ominous.

I sit in the back of the room, hoping not to draw the attention of the 20 or so managers — mostly white males in their 30s and 40s in casual business garb — who fill up the room.

Other Bay managers are attending the meeting virtually, by videoconference from Switzerland, Ireland and Santa Clara, Calif., among other Bay facilities.

Shortly before 1 p.m., House strides in crisply. He's tall, dressed in jeans with a blue shirt and sport coat. He has the look of a high-tech Marlboro man: rugged, a straight-shooter. He quickly brings the meeting to order, laying out the agenda and promising to wrap up 50 minutes later — on time, as every meeting should end. While he is clearly practiced at presenting the material,

that's one promise he won't live up to.

Why does Bay need to get better at meetings? Because meetings are money, and that money should be going to shareholders. House quickly reels off the cost of meetings. A two-hour staff meeting with eight people costs \$775. A two-day off-site for 20: \$17,284. Bay's quarterly all-employee meetings go for a cool \$1 million each. "Calling a meeting is authorizing an expenditure," House states.

### Back to basics

This stuff isn't rocket science. I'm struck by how straightforward the material is: Get an

agenda ready in advance; invite the appropriate decision makers; draw out dialogue from everyone; and, most important, come to a decision.

But the managers are listening attentively, nodding when House makes a key point and laughing when he cracks a joke. Most of all, they seem to appreciate the straight talk — something they've all been instructed to practice. Some examples:

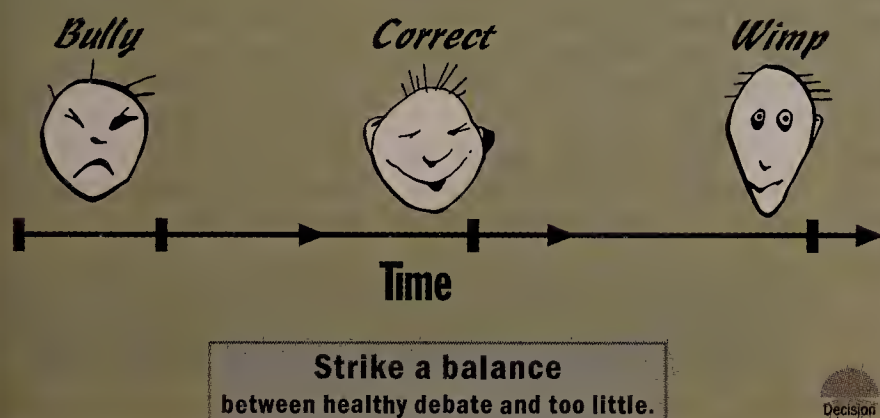
- "If you don't prepare for a meeting, you are trading your time for other people's time," House tells the group. "But it costs Bay big money."

- On following up after a meeting: "Don't polish the turd. See House-trained, page 56"

## Step 5:

### MAKING THE DECISION (Continued)

#### When to decide?



It's important for managers to strike a balance between allowing too much time for debate and too little, as noted in this presentation slide from David House's course on decision making.

out to train their own reports in the fundamentals of running a business. We're not talking Intro to Gigabit Ethernet or Advanced ATM here. The four courses that form the House Training curriculum are decidedly pragmatic and nontechnical: Straight Talk, Decision Making, Effective Meetings and Managing for Results.

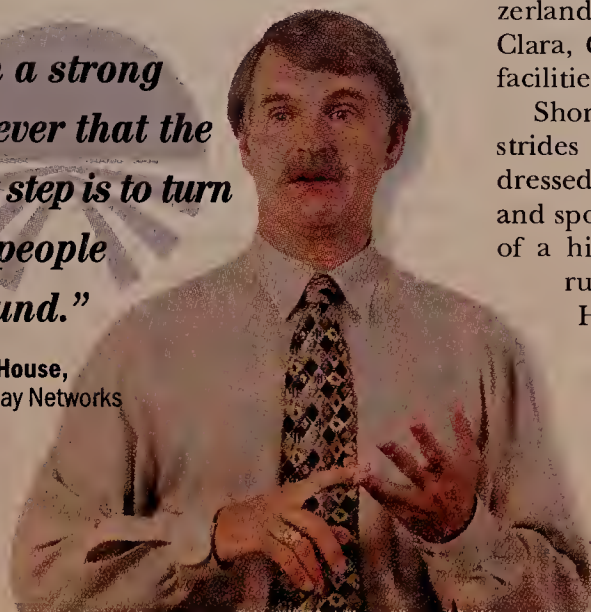
House's goal is to get employees from the corporate offices to the manufacturing floor to work together, use the same approaches to raising and resolving issues, and think of themselves as members of a single team — Bay Networks. He is trying to overcome the geographical, political and cultural differences that have slowed Bay's progress since the company was formed by

bruised. Critics say the company has moved too slowly in key markets, and its marketing message is muddled.

The company has been hamstrung by the divided loyalties of workers who saw themselves as members of the East or West Coast operations — SynOptics or Wellfleet or Xylogics loyalists,

**"I'm a strong believer that the first step is to turn the people around."**

David House,  
CEO, Bay Networks



CINDY CHARLES

## Analysts question whether Bay's management training will pay off

Bay Networks, Inc. CEO David House's warm and fuzzy management synchronization may be popular internally, but will it really change the company?

Analysts are decidedly mixed on that subject. Some, like Rick Villars, director of the Network Architectures and Management practice of Framingham, Mass.-based International Data Corp., say House has to bring consistency of strategy, thinking and customer service to this divided company if it is going to compete against Cisco Systems, Inc. and 3Com Corp.

"I think House is doing the only thing practical given the current state of the industry. This isn't a start-up with a hot technology. The big, successful companies have succeeded by having a consistent focus on business issues," Villars says.

Adds John McConnell, president of McConnell Consulting, Inc. in Boulder, Colo.: "Bay needs to get synchronized before trying to go forward too fast."

But even Villars and McConnell agree that time is the key factor. Dealing with Bay's human resources problems is a positive step, but House has other pressing issues to deal with — and quickly.

For one thing, analysts criticize House's Adaptive Networking strategy — the new blueprint for Bay's technology future — as too vague. "Customers need something more that shows them how Bay's strategy is different," says John Morency, director of the Network Industry Practice of the Registry, Inc. consultancy.

"If Bay's problems were simply a matter of poor execution then thinking, talking and playing as a single group might be appropriate," says David Passmore, founder of Sterling, Va.-based Decisys, Inc. "But Bay's real problem is a lack of competitive differentiation. Bay is unable to give customers a concrete reason why they should buy from Bay rather than, say, Cisco. David is doing a good job as a manager, but what he should really focus on is leadership."

Other issues industry insiders say House must address are Bay's woeful marketing and its relative lack of success in the burgeoning carrier/Internet service provider market.

House acknowledges the challenges, but it's not as though he's been spending all his time as a teacher. He's already engineered three acquisitions to strengthen Bay's portfolio, including the \$155 million June buyout of Rapid City Communications, an early leader in the Gigabit Ethernet market. House has trimmed Bay's research and development portfolio, weeding out unpromising projects and diverting resources to key technology areas such as switching and remote access.

—John Gallant



## House-trained

Continued from page 55

here, just get the minutes and action items out while things are fresh in your mind." Also, "Remember that the pen is mightier than the sword. The most powerful person is the one keeping the minutes. Don't pick the lowest level person to do that."

● Asked about refreshments at meetings (I glance down, guiltily, at my Diet Coke): "I think this company spends very freely. People aren't thinking 'Is this best for shareholders?' We buy a lot of food — bagels, juice, donuts — and the catering services are gouging us. Seventy-five percent of this stuff is left untouched. Why is Bay entertaining Bay? Every dollar we don't spend on this stuff ends up as profit."

● When a remote worker joins the meeting late via video, House stops. "Glad you could join us, Mark," he says curtly. "The meeting started five minutes ago." The manager doesn't respond — wisely — and House gets back on track.

● On the importance of carrying through on what they are learning, House tells the managers: "I only want you to teach this if you are going to do it. If I have to teach all the classes, I will. But I'll get a new set of trainers."

### Make everyone feel welcome

House spends time counseling the managers on how to conduct meetings that span different time zones, even national boundaries — a vital skill for a company born of a bicoastal merger. Don't use any materials locally that haven't been distributed to all remote meeting sites. People in the local site should always back off when a remote employee is trying to speak (Bay's back-off algorithm, House calls it). Most important, "treat the people at the remote end better than the local people," he says.

Throughout the meeting, the managers interact comfortably with House, commenting on key points, even offering up a few jokes of their own.

They genuinely seem to like him and appreciate the leadership he's bringing to the company — at least that's the case with the workers I talk to in the days after the meeting.

Whether from finance, marketing or development, Bay

workers echoed the same theme. Before House arrived, the company had good technology, great engineers and a big problem making decisions and getting things done. The bifurcated management team of former CEO Andy Ludwick and Chairman Paul Severino was low on visibility and direction.

House seems to be tapping into the natural competitiveness of Bay employees who want to get back into the fray.

Are people following these New Bay Basics for running meetings and making decisions?

Yes, honest, employees say, and as far as I can tell, it is the truth.

"It's not that the material is new," says Sandy Dziadzio, a

senior financial analyst. "But he's bringing us all onto one page. He is focusing on the things that worried us — managing for results and straight talk. We knew things were wrong, but we didn't see anything changing until he came on board. He is communicating strategy down to all levels, and we all need to carry this through."

Adds Dziadzio, "The two company thing — SynOptics vs. Wellfleet — is going away. That was discouraging. Now we feel like one company."

'Amen,' says Gale England, vice president of engineering services in Bay's Enterprise Business Unit.

England started with Wellfleet out East and moved to San Jose in January, so he's seen both sides of the Bay coin.

"Morale was low. We were struggling to meet objectives. Our numbers were flat. Now people feel more competitive. We are working together and people sense that."

England is one of about 120 managers selected for first-tier training.

He's now done some House

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Training of his own, having run a couple of classes each with 40 to 50 lower level managers. "This is basic effectiveness training. These are the things well-run companies do. But people here forgot how to manage like that. We desperately needed to get back on common ground and move forward."

On several occasions after the meeting I quizzed Bay executives on their House Training. Without exception, they responded the same way: "This stuff isn't advanced thinking, but we needed it."

At a trade show, I asked a Bay technology director to produce his decision-making card — a laminated keepsake with instructions on how to make effective decisions. Without a pause, he pulled it from his wallet. Ah, but does he use it? "Sure," he replied, "and if I forget to use it, someone reminds me pretty fast."

The training sessions grew out of what House called an "active listening program" he initiated upon joining Bay. House, along with other executives and a team of consultants, spent two months talking to current and former Bay employees, as well as customers and suppliers.

What House and company heard was a deep sense of frustration at the lack of cohesion in the company and the failure of management to act on opportunities or problems.

Using the information gleaned from the listening program, House and 70 other top managers developed an action plan, and House launched a sweeping reorganization in January that, among other things, focused sales and marketing on key vertical markets.

He and the managers regularly bring together the full work force to get an update on the action plan, which is published on Bay's intranet — along with all the training materials — for anyone to review.

House calls the training programs "another brick in the wall" of Bay's revitalization. "I'm a strong believer that the first step is to turn the people around," he says.

What's more, he is also spending plenty of time meeting with key customers to keep them in the Bay fold and to try to spark a new sense of excitement about the company.

Is it working? Yes and no. In the customer community, Bay gets mixed marks for its efforts. Some customers say they haven't seen much change in their dealings with the company and they think it's too soon to determine whether Bay will break any new ground in its Adaptive Networking blueprint for the future.

But other long-time customers see improvements, citing faster responses to questions and quicker problem resolution.

Customers are concerned about Cisco's growing influence over the industry, and they seem to want Bay to stage a comeback.

"We have seen a change for the better in our relationship with Bay," says David Van Mid-

manager keeps bringing up observations.

While House knows he is violating one of his own rules by letting the meeting run on too long, he patiently responds to each.

Then House turns to me and asks for my insights. I tell him I'm trying to follow the Prime Direc-

tive from *Star Trek*: Don't interfere with the development of any alien culture you are studying.

That draws a laugh, so I press my luck. "Do you really think this will erase the differences of a company that is so geographically diverse?" I ask him.

He doesn't need to answer. The other

managers chime in about the need to be more courteous to remote colleagues, to make time to meet them in person and to send them all the meeting materials in advance.

House listens as his trainees deliver the messages he has been delivering in person at Bay's far-flung facilities for the past couple of months.



## Decision Making at Bay Networks

- Step 1: What is the decision to be made?
- Step 2: When does the decision have to be made?
- Step 3: Who is the decision maker?
- Step 4: Who should be consulted before the decision is made?
- Step 5: Make the decision.
- Step 6: Who will ratify or veto the decision?
- Step 7: Who will need to be informed of the decision?

Bay Networks' executives aren't supposed to leave home without this laminated card that reminds employees of the steps they should follow to make effective decisions.

dlesworth, manager of network and operations at the University of California at Los Angeles. "They have made an effort to reach out to us to see if we were satisfied, not just to see if we wanted to buy something. That was a breath of fresh air. During this school year, even our picky little nagging issues have been cleared up."

Now David House is wrapping up his final training session. The managers in the modern, sterile conference room seem to want to linger.

They ask questions and make comments about life at Bay. One

In closing, he tells the group: "We discovered these problems during our listening program. This was shock treatment for the culture of this company."

Then, like a preacher, he raises up his hands and exhorts: "Now go forth and train. You have all been House-Trained!" ■

### We want to hear from you

Do you have any ideas for Management Strategies stories? Contact Amy Schurr at (508) 820-7485 or aschurr@nww.com.











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8/25	Review: Web Traffic redirectors; Intranet apps Special Focus: activex update		August 13th
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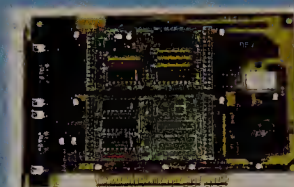
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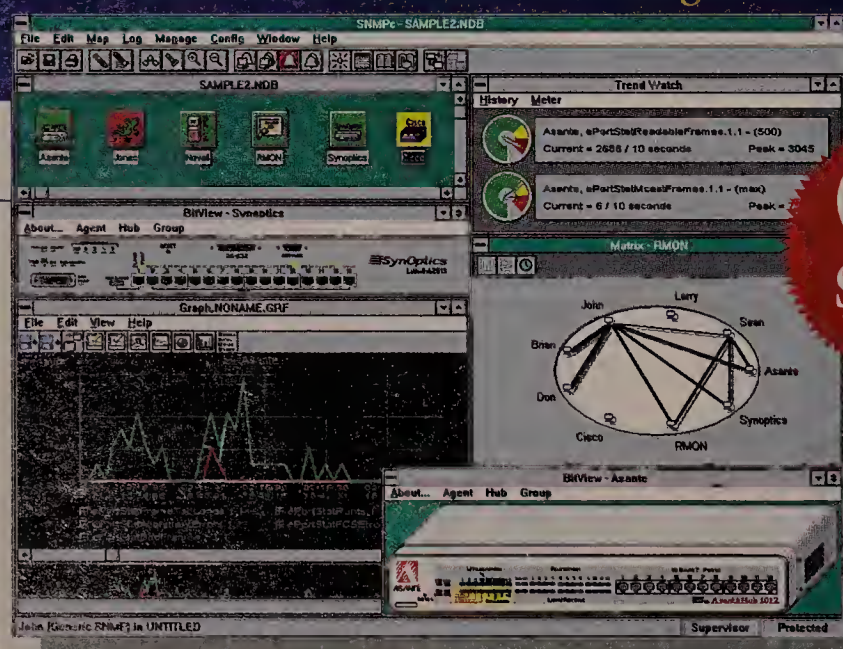
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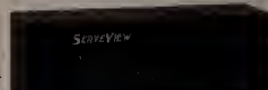
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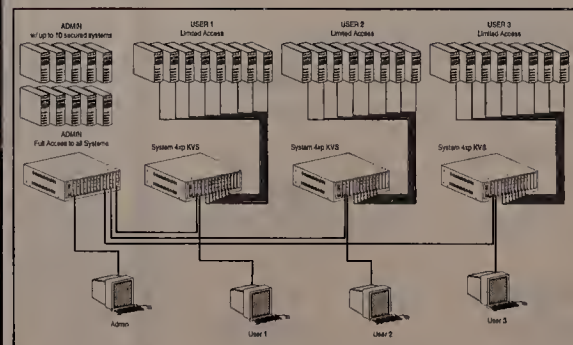


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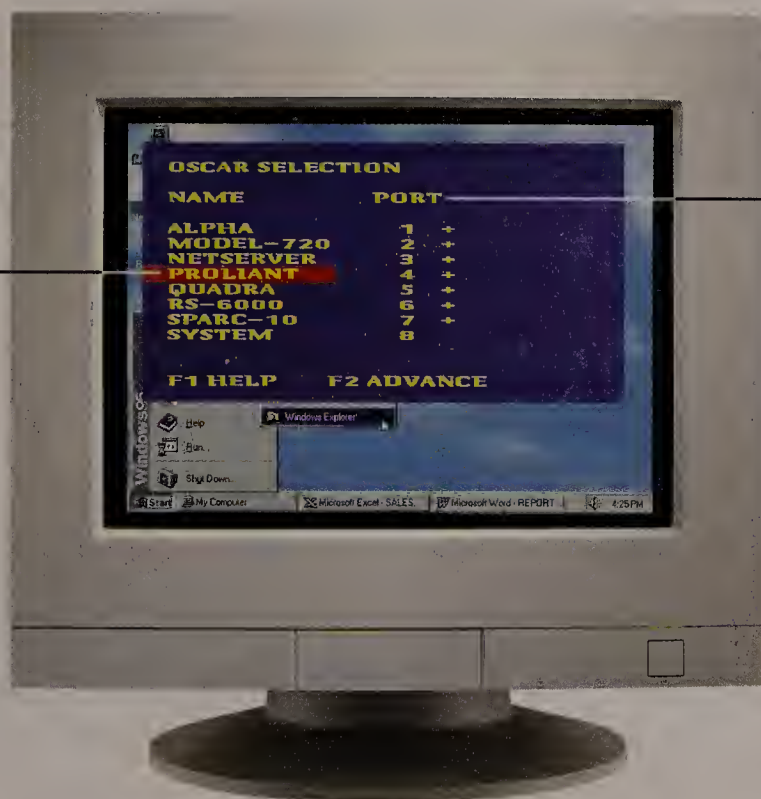
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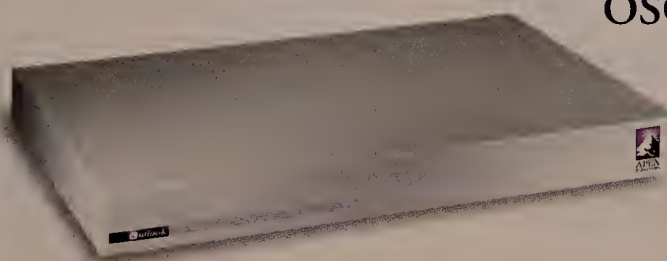
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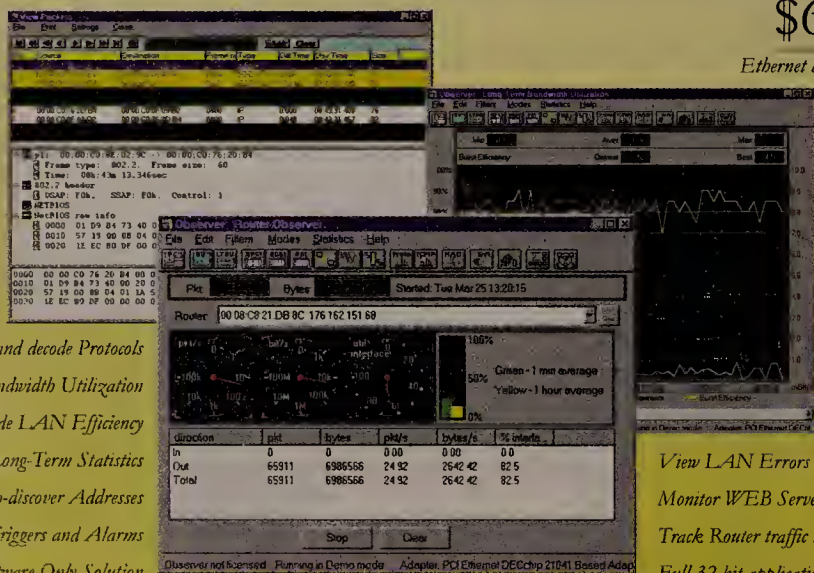
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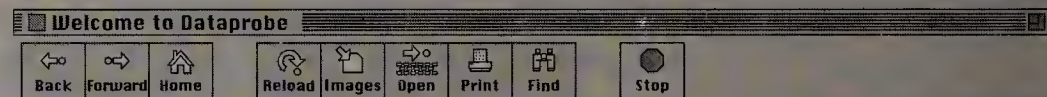
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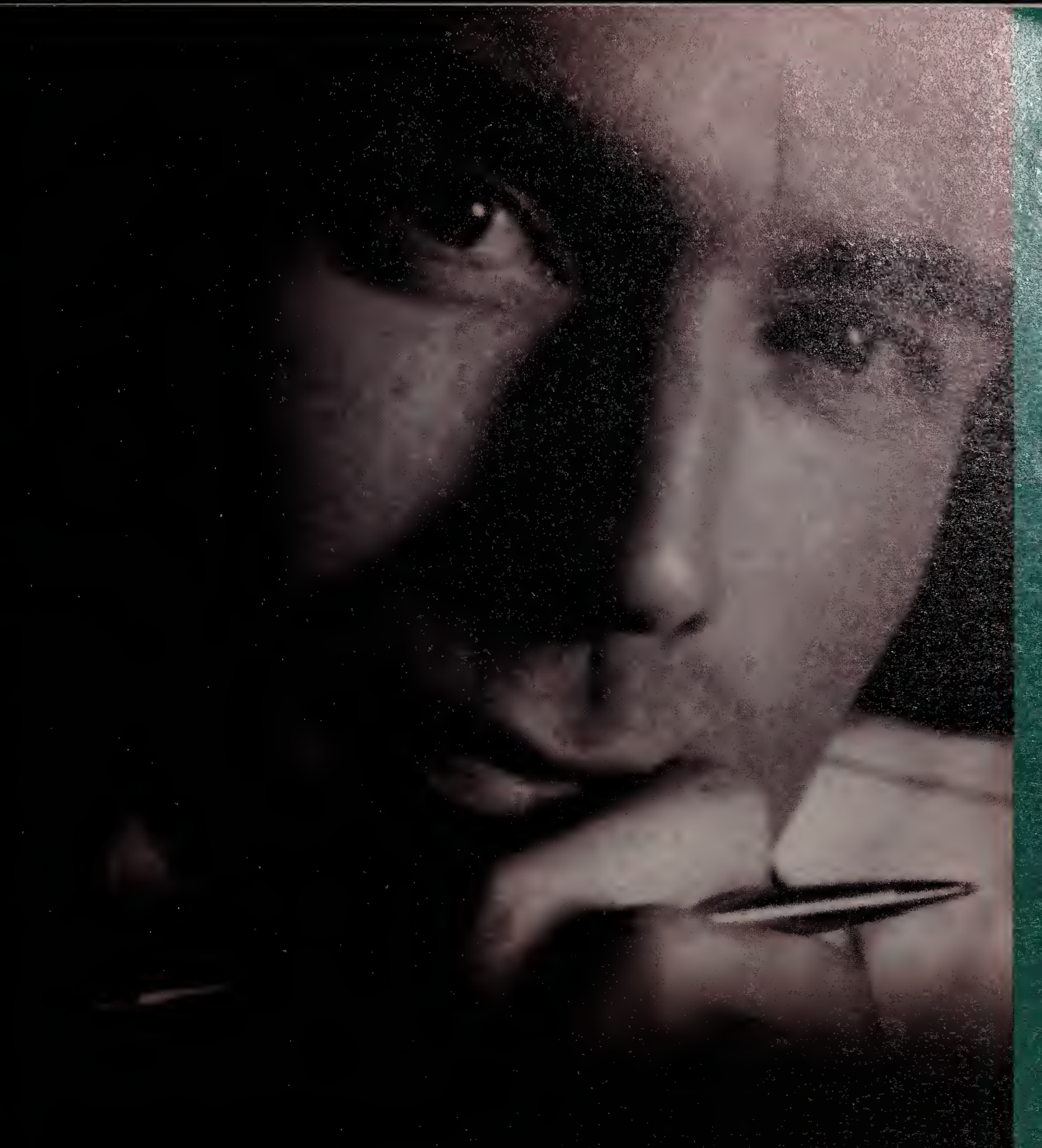


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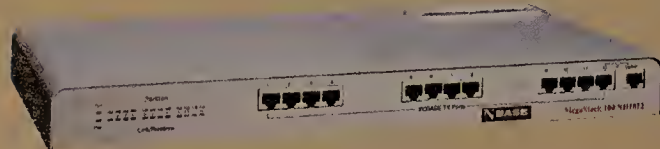
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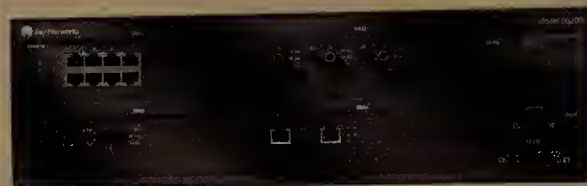
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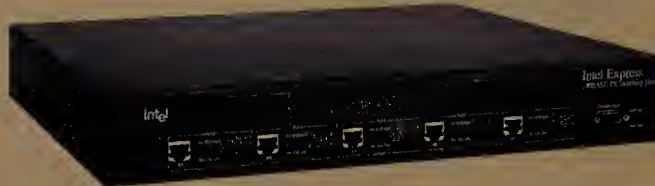
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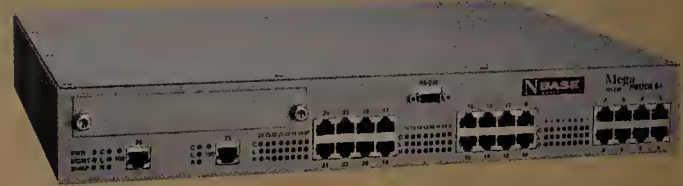
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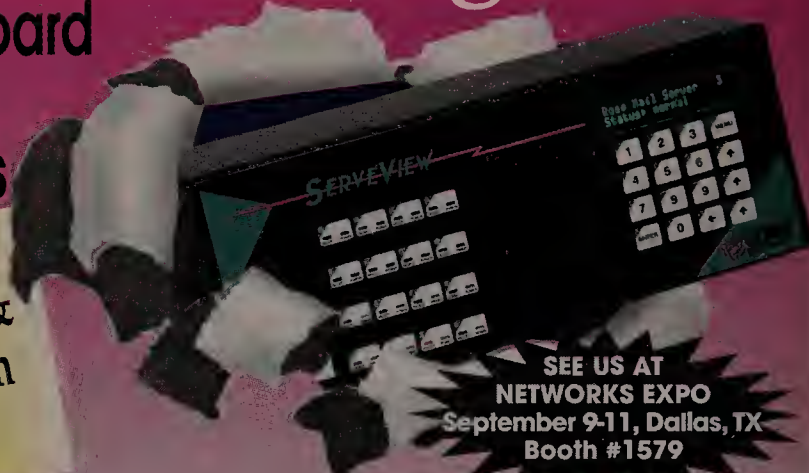
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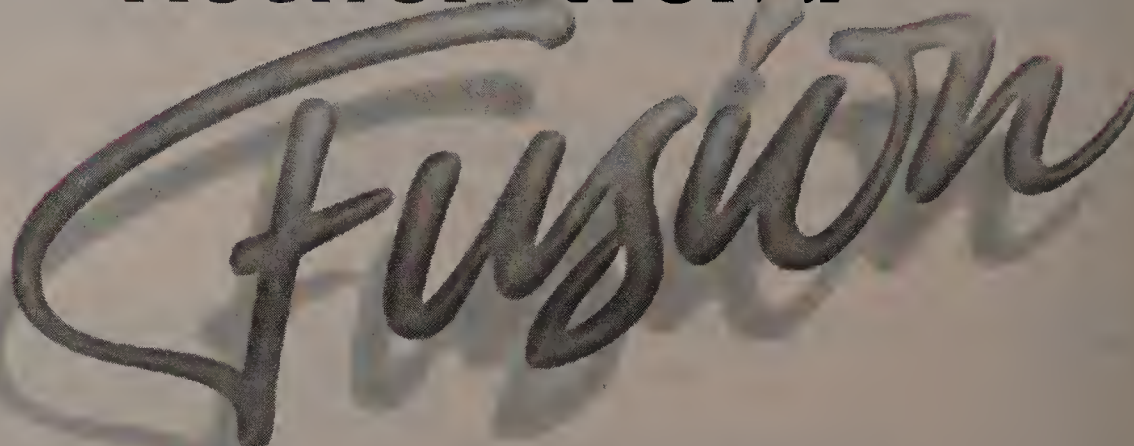
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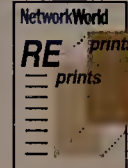
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## Novell

Continued from page 1

has not been made, but the company probably will test NetWare 3.X for compliance given that it is an older product still widely installed, said Denice Gibson, executive vice president of Novell's product group.

Additionally, all products shipped in 1998 will be built from the ground up with year 2000 in mind, Gibson said. The new products will include the upcoming Moab revision of Novell's flagship IntranetWare operating system, she said.

## Impending doom?

The coming of year 2000 has raised concern among IT industry members that computers and software not designed to recognize the millennium change will crash or go haywire. A year 2000 problem would be particularly bad for customers counting on Novell software for directory synchronization and group collaboration, where timing is everything.

Year 2000 issues to date have largely centered on older COBOL code that does not take the millennium change into account. Industry observers say if companies do not change all time and date references to reflect a four-digit field such as "2001" vs. the existing two-digit code that presupposes a "19" prefix, the result will wreak havoc on business applications running on mainframes and other large systems.

But given that network operating systems and applications have grown to count on time and date stamps for capabilities such as collaboration and directory synchronization, companies also should look at whether the roll-over to a new century will affect their networks, said Sheri Anderson, senior vice president and chief information officer at Novell. She is heading Novell's Project 2000 initiative, which recognizes that the company is one of its own biggest customers, with 600 servers and 35,000 user accounts.

"A worst-case scenario is that your whole network could stop running if you don't know what

the date is," Anderson said.

Novell's operating system software and groupware applications allow data to be processed in more than one location and to be synchronized over the network. "So we have to make sure that synchronization is going to work, that it is not going to disregard certain messages because it doesn't understand their date format or synchronize them inappropriately so that you send garbage over your network," Anderson said.

A time and date stamp also is a mechanism employed by Novell Directory Services to provide validated access to network resources. "It's all part of verifying who you are, where you are, when you are," Anderson said. "The year 2000 issue could completely stop the endpoints from communicating because they may not be able to validate that the machines are who they say they are."

NetWare 4.X customer Kelly Overgaard was alarmed that the year 2000 issue could affect more than just the company's PC hardware and business applications. "[Network software] is an added layer that I am hoping Novell can just resolve for me up front," said Overgaard, LAN and desktop services manager with Sun-Diamond Growers of Pleasanton, California.

Preliminary testing has yielded no evidence that Novell's flagship products will cause these problems, Anderson said.

"But we need to verify that and tell our customers well ahead of December 1999 that they can plan on our stuff working for them into the next century," Gibson said.

Novell has worked with Utah-based Key Labs, Inc. on a test suite that will certify whether all timing and synchronization software within NetWare 4.X, GroupWise and ManageWise will be affected by the year 2000 issue. Novell will first test the products internally for compliance and then have Key Labs and possibly other third parties verify the tests. All compliant products will carry a year 2000 compliance label on the Novell red box, Anderson said. ■

## IN COMPLIANCE

**IntranetWare's leading competitor, Windows NT Server, has already been certified as year 2000-compliant, according to Microsoft officials.**



**Novell CIO Sheri Anderson** is tracking year 2000 net issues for the company.

## Sounding the net alarm on year 2000 problems

*Year 2000 specialist Karl Feilder warns that client/server applications are at risk.*



Call him Chicken Little or Paul Revere, but Karl Feilder is certainly shouting at the top of his lungs that the year 2000 problem is not only about mainframes.

PCs and client/server applications such as e-mail are at far greater risk than commonly believed, says Feilder, CEO of Greenwich Mean Time, Ltd., a British company geared to addressing that aspect of year 2000. Greenwich recently tested 4,000 popular software programs and found 64% of them had a year 2000 problem. Feilder spoke last week to *Network World* Senior Writer Paul McNamara.

delete it . . . The more modern e-mail systems will cope, provided that the machines they're running on are compliant.

## What's the scope of the problem in PC hardware?

We have conducted tests on more than 500 BIOSes and found that of the pre-1997 machines, we got a 93% failure

**"Year 2000 may not be of concern to the network managers, but it bloody well should be."**

**Karl Feilder, CEO, Greenwich Mean Time**



rate on the year 2000. On the 1997 ones, we saw a 47% failure rate. It was a big shock.

## What causes the PC hardware problem?

The BIOS, in most cases, thinks that the year after 1999 is the year 1900. It passes 1900 to the operating system on the PC, which is your Windows or DOS, or whatever you've got on the screen, and it's up to the operating system to interpret what it thinks that date means.

DOS systems seem to think that date is obviously a mistake, and report [it as] the 4th of January 1980; that's their error date.

## How do the applications fail?

The biggest source of the problems when it comes to software is spreadsheets and databases. In most spreadsheets, when you enter a two-digit year, like 53, they make a preprogrammed guess as to what century you're talking about. The criteria for those guesses are hard-coded into the program. So if you take, for example, Microsoft Excel 97, and you type in the year 28, it assumes you mean 2028.

## Don't you have a financial interest in hyping this?

I don't need to do this. I started a company [Network Managers, Inc.] in 1990 with some friends and sold it to Microsoft [Corp.] in 1995. I don't need to work . . . I am about raising awareness.

If I could jump up and down

**Conventional wisdom holds that year 2000 is a mainframe problem that network managers need not fret about. What do you think?**

Year 2000 may not be of concern to network managers, but it bloody well should be.

**What would the consequences be if this problem goes unaddressed?**

The most likely thing is that your e-mail system won't work, your payroll system won't work, and most of your financial calculations will go wrong. And they will go wrong to the extent that it

Go online to get the complete transcript of our interview with year 2000 consultant Karl Feilder.

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will take you longer than you've got in the remaining life of your company to fix them.

## What might happen with e-mail?

If you don't fix your PC hardware, then [on Jan. 1, 2000] your PC is most likely to think that it's the year 1900. If I send you an e-mail dated 1900, it probably won't get to you because somewhere along the line between me and you a router or a mail gateway will look at that message and say, 'Hey, this message is a hundred years old,' and will just

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## Justice

Continued from page 1

Institute will release the list of Justice Department mistakes as part of a presentation to help others avoid similar intrusions.

The Aug. 16, 1996 hack on the Justice Department Web site was more annoying than damaging. Hackers relabeled "Department of Justice" as "Department of Injustice," added a swastika to the department's seal and posted several racy pictures. The attack could have been much worse given that the hackers eventually could have reached e-mail files, case records and even private Web sites at other federal agencies.

The attack spurred an in-depth re-examination of the Justice Department's Web security, led by Deputy Attorney General Mark Boster. The findings formed the basis for widespread changes in the way the agency runs its Web site.

## A daily quest

Overall, the lessons learned make it clear that Web security is not a problem that is solved once and for all.

"It's almost a daily quest," said Alan Paller, the Intranet Institute's director of research and principal author of the "Twelve Mistakes to Avoid in Managing Security for the Web," a brochure that will be presented this week to two dozen federal IS chiefs belonging to the Government Information Systems Technology Board.

"If you ever let down your guard, the field is moving so quickly that yesterday's defenses will start to atrophy almost immediately," Paller said. "That's a frightening thought."

The Justice Department now regards security as a full-time job that requires lots of people power to do it effectively. "I was fascinated by the level of effort [Boster] now thinks is necessary

Cilio, president of the Intranet Institute.

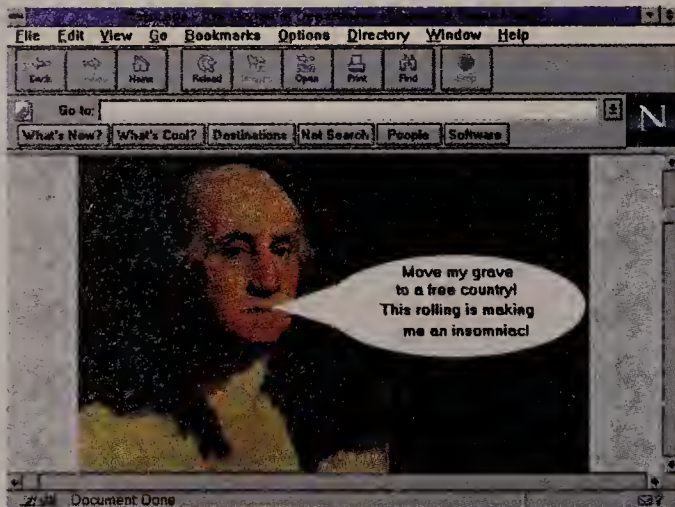
Clarifying and centralizing Web site authority was another lesson learned. When authority is decentralized, it is harder to see the overall security picture and more difficult to respond quickly and decisively to threats, according to the department.

## Technical lessons

The Justice Department also learned several technical lessons. One of the more surprising was that even if it unplugs its main Web site, end users can access compromised information through caches that are routinely created at other Web sites.

Although the department shut down its defaced Web site within 40 minutes of being alerted to the attack by the FBI, Web surfers could still access caches around the globe for the next three days.

Now the agency switches to a



Visitors to the Department of Justice Web site last August found this and other hacker handiwork.

just to stay even with security threats," Paller said.

The department also learned to rely more on itself when it comes to security. No longer does it let what other organizations are doing with their Web sites determine what the Justice Department should be doing.

For example, the agency's attorneys may want Web access to interlinked legal information. But if that creates unacceptable security risks, they may need to access the data through specially secured computer systems that lack the Web's convenience.

The Justice Department is also much more wary about participating in multisite networks in which some sites may be careless about security and create a weak link that can put other sites at risk.

And the department's IS group puts much less faith in systems integrators that rarely have an end-to-end view of all aspects of security. "Justice now likes to hire individuals, instead of big systems integrators, because it's much easier to put [individuals] through a five-year background [security] check," said John

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## Feilder

Continued from page 67

**What advice would you give network managers?**

First, they need to do a complete inventory of their whole hardware and software environment. For routers and hubs, they need to know what models they've got and what versions of firmware they're running in them. Then they need to get in touch with the manufacturers [to ask about compliance] and identify the mission-critical components — what do they need to fix to continue operating?

**How does one decide whom to hire for help with year 2000 issues?**

The year 2000 mailing list is a good source of information ([www.year2000.com](http://www.year2000.com)) . . . A lot of people in this industry, if it wasn't for the year 2000, would be running UFO spotter societies. They're extremely committed and passionate, but they're not very commercially aware. ■

backup server that forces cache sites to replicate uncontaminated information at the new address.

The Justice Department also learned to put much less faith in firewall software and much more effort into making certain the firewalls have been configured properly and securely, Cilio said.

In the administrative area, the Department now stores all logs and incident data on remote servers, safe from deletion by hackers, who routinely find the logs on the Web server and deftly erase any trace of their presence.

"These are the issues that our security professionals say are happening all the time," Cilio said. "These are the real world issues."

Get a free copy of the Web security brochure by e-mailing [intranet@clark.net](mailto:intranet@clark.net) and mentioning Network World.

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## Cougar

Continued from page 1

alternative to the five-slot, 5G bit/sec LightStream 1010 for building and campus backbones, server attachments and WAN access. And even though Cougar will ship after Cisco's Gigabit Ethernet switches, it is likely that Cisco shops implementing ATM today for guaranteed quality of service and traffic engineering will upgrade to Cougar.

The 13-slot Cougar chassis will support up to 128 155M bit/sec OC-3 ports, 32 622M bit/sec OC-12s and eight 2.5G bit/sec OC-48s, according to sources familiar with the switch's development. The LightStream 1010, meanwhile, supports up to four OC-12s — each 1010 OC-12 module sports only one interface — and 16 OC-3s.

Cougar also will support ATM, DS-3/E-3 and T-1/E-1 circuit emulation modules that run in the 1010 and the 13-slot Catalyst 5500 LAN switch, thereby protecting existing customer investments in those devices, the sources said.

"I've heard [Cougar] is based on the Catalyst 5500 chassis with a longer backplane," said Carl Harris, communication systems engineer at Virginia Polytechnic Institute and State University in

Blacksburg, Va. The Catalyst 5500 is a 3.6G bit/sec frame and cell switch.

Cougar also will feature redundant switching and CPUs, as well as Cisco's Tag Switching technology for Internet traffic engineering, the sources said.

Cisco declined to comment on Cougar. Even though industry pundits are predicting the demise of ATM in the campus backbone with the emergence of Gigabit Ethernet, there remains a market: ATM products are shipping in volume today; Gigabit Ethernet is not (NW, June 30, page 1).

Indeed, in a recent survey of 210 network managers from midsize to large companies, Business Research Group (BRG) of Newton, Mass., found that 43% will implement ATM by the end of 1999. Gigabit Ethernet will be deployed by 33% of the respondents, BRG found.

Cisco, though, is not pitting ATM against Gigabit Ethernet as rival backbone technologies; rather, the company is merely offering customers a choice and staying true to its technology agnosticism, observers said.

Cougar will go up against Bay's 14-slot System 5000BH, which will be stretched to accommodate up to 48 OC-12s by the

end of 1998 (NW, June 30, page 1). Currently, the System 5000-BH can support up to 12 OC-12s.

Cougar also will face off against FORE's current top of the line, the ASX-1000. The ASX-1000 scales to 10G bit/sec of nonblocking bandwidth and can support up to 96 ports at speeds from 1.5M bit/sec to 622M bit/sec, according to FORE.

FORE, however, does not plan to stand pat with the ASX-1000. By mid-1998, the company

## COUGAR INTERFACE MODULES

Port type	Ports per module	Maximum ports
OC-3	16	128
OC-12	4	32
OC-48	1	8

will leapfrog Cisco's Cougar with a 40G bit/sec switch that can support 64 OC-12s and 16 OC-48s, said Joe Skorupa, FORE's director of marketing.

FORE is the ATM campus switch market leader, with a 24.1% share of the 293,000 ports shipped last year, according to Dell'Oro Group, Inc. in Portola Valley, Calif. Cisco came in second with a 15% share. ■

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## Token Ring

*Continued from page 1*

modules, switches and other products designed to woo users back into the Big Blue fold and let them build larger, faster Token Ring enterprise backbones.

IBM hopes the new, faster Token Ring products will help stem the tide of users moving to Ethernet, Fast Ethernet and Gigabit Ethernet products while helping users decongest clogged Token Ring server arteries.

Other companies, such as Cisco Systems, Inc. and 3Com Corp., have been jumping into the token-ring fray with promises of creating technology to make Fast Token Ring a reality (see NW, May 26, page 1). But their plans are not for a pure Token Ring package such as IBM's new products.

Other vendors, such as 3Com, Bay Networks, Inc. and Xylan Corp., have indicated they also would support IBM's pure Token Ring initiative. Xylan may even have an integral role in IBM's Token Ring rollout, sources said.

However it rolls out, many IBM users are looking forward to the faster speeds.

"In our environment, if it's faster and we can use the same major interfaces and pipes to get [Token Ring] into the host, we'll probably stay with it," said Jerry Wetherington, systems coordinator for the Northeast Regional Data Center at the University of Florida in Gainesville, which has about 5,000 Token Ring users.

"One thing IBM has been good at is protecting our investments," Wetherington said.

The new Token Ring products are expected to include blades for the 8260 Intelligent Hub and adapters for the 8274 Token Ring switch. New high-speed network interface card adapters also will be in the package. Other future products will probably include a Fast Token Ring adapter for the 37XX front-end processor and support for the technology in IBM's mainframe-based Open Systems Adapter (OSA). OSA allows direct LAN connectivity to the mainframe.

The new products are going to be backward-compatible with today's 4M bit/sec and 16M bit/sec Token Ring LANs, sources said. Some of the products should be available by year-end, sources said.

What is unclear is whether IBM will announce support for the new IEEE 802.1q specification, which defines how users can run token-ring frames within Fast Ethernet frames.

One source speculated IBM may hedge its bets by supporting pure 128M bit/sec Token Ring environments and 100M bit/sec 802.1q nets as well. IBM did not comment on the rumored announcement.

In addition to the products, sources said IBM also will rehash an oft-overlooked existing technical capability called Token Ring piping — similar to Ethernet trunking — that lets users combine multiple Token Ring ports into one large, logical Token Ring pipe.

IBM is expected to divulge its plans during a *Network World*-sponsored token-ring conference on Aug. 26 in Boston, led by Kevin Tolly, president of the Tolly Group testing firm, and also at an IEEE conference on Aug. 27.

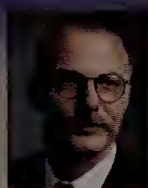
Some observers said Token Ring is far from being down for the count and is, in fact, expanding. "Token Ring installation

is increasing," said Frank Dzubek, president of the Communications Network Architects consultancy in Washington, D.C. "Not the number of new installations, but the number of seats in the installed base, is increasing."

On the other hand, faster token ring may be too little too late. "With 100M bit/sec Ethernet and Gigabit Ethernet

around the corner, token ring is dead," said Rich Dewey, manager of network services with the Niagara Mohawk power plant in Syracuse, N.Y.

Dewey said the most cost-effective way to increase bandwidth is to leave the current token-ring setup and migrate to Ethernet. Token ring's time has come and gone, he said. ■



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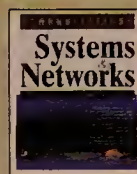
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# Backspin

## "Somebody killed something; that's clear at any rate," said Alice.\*

**Ticketmasterwocky (with apologies to Lewis Carroll)**

*'Twas MSN Sidewalk content, and the users  
Did IMG and HREF from the page:  
All missing were the banners,  
And the sponsors were outraged.*

*"Beware the Microsoft site, my son!  
The frames that bite, the links that catch!  
Beware the litigation costs, and shun  
The outrageous revenue snatch!"*

Back in April, Ticketmaster (www.ticketmaster.com) the well-known gouger, uh, purveyor of tickets, donned its Don Quixote outfit and went full tilt at the Microsoft Network windmill.

Ticketmaster's complaint (the text of which you can find on the most excellent BitLaw site at www.cal-law.com/ticket.html) was that MSN's Sidewalk site (www.msn.com/default.asp?bookmark=http://sidewalk.com&title=Sidewalk) linked to the Ticketmaster site.

Whether you heard about it then or now, you probably greeted the news with "Huh?" Why would anyone object to a link to their company's site?

Well, the problem was that MSN didn't link to Ticketmaster's home page but rather to pages inside the Ticketmaster site. This allowed MSN Sidewalk Seattle, which has content related to Seattle, to link to the Ticketmaster listings for the area.

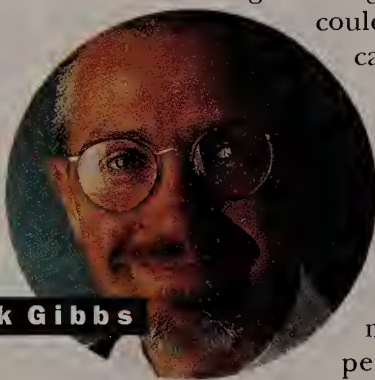
While Ticketmaster makes money selling tickets, it also makes big bucks selling banner ad space to the likes of MasterCard. However, the only place you'll find the banner ads is on Ticketmaster's home page.

*He took his legal case in hand:  
Long time the pirate foe he sought —  
So saved up he the legal fee,  
And stood awhile in thought.*

*And, as in marketing thought he stood,  
MSN users, with keyboards aflame,  
Came referencing through the 'Net hood,  
And lost money when they came!*

The consequence was that MasterCard saw fewer hits on its banner than it would have otherwise. That, in turn, reduced revenue for Ticketmaster. In addition, negotiations to license MSN's access to Ticketmaster had just collapsed and, well, it was off to court we go.

I've seen many commentators criticize Ticketmaster's position, but I'd argue that the company's position is wholly reasonable. It is about money, for God's sake! What would you expect Ticketmaster to do?



**Mark Gibbs**

But what if it wasn't MSN or some other site causing this problem? What if you bookmarked a page in the Ticketmaster site that was of interest to you? Ticketmaster loses out anyway.

What's so odd about the whole MSN/Ticketmaster fracas is that Ticketmaster could have solved it easily with a little programming. For example, the company could have made all pages dynamically generated so you had to follow the planned path to the listings you wanted.

If you called up a bookmarked page that was no longer valid, Ticketmaster could just drop you on the home page. But nope, it is so much easier to go to court (or perhaps Ticketmaster realized the publicity would be worth the legal costs ... hmmm?).

*One, two! One, two! And through and through  
The legal case went snicker-snack!  
It left links dead, and without its head  
MSN went galumphing back.*

*"And whilst thou slay advertising?  
Come to my arms, my beamish boy!  
O frabjous day! Callooh! Callay!"  
He chortled in his joy.*

Just to make matters worse, I've got a great idea: Why doesn't someone come up with a browser add-on or firewall enhancement that examines the datastream to the browser, finds the banner ads and simply removes them?

Obviously, it would be easy to filter ads supplied by third parties, such as DoubleClick. But for sites such as Ticketmaster, you would have to look for obvious references (www.mastercard.com, for example) or use some other, more devious mechanism — best idea gets a T-shirt.

I like the idea of upsetting the advertising apple cart. It's not that I want to see advertising revenue suffer, but any stress on current practices will lead to more robust and effective methods.

*'Twas anybody's content, and the users  
Did select from the page:  
All messed up was the model,  
And everyone outraged.*

*So my friends, advertise your thoughts at  
nwcolumn@gibbs.com or telesell at (800) 622-1108, Ext. 504.*

*\*From Through the Looking Glass by Lewis Carroll (www.promo.net/pg/\_titles/i-a4.html#i-a4.html)*



# 'NET BUZZ

The latest on the Internet/intranet industry

By Chris Nerney

**GO WEST, CHARLES, GO WEST** Charles River Ventures of Waltham, Mass., specializes in early-stage investments and focuses primarily on companies in the Northeast.

But the venture firm recently funded two Internet start-ups based in Texas and California, proving either that cyberspace knows no regional boundaries or Charles River's partners seriously need to brush up on their geography.

Web site content management software company **Vignette Corp.** of Austin, Texas, will receive \$10 million from Charles River, while San Francisco-based **FlyCast Communications Corp.**, which offers products and services for Web site ad management, will get \$5.4 million from Charles River and Bessemer Venture Partners.

Vignette, founded in 1995, features software that separates content from format, enabling template-based site development. The funding from Charles River is Vignette's second round of financing.

FlyCast was founded last year and markets a group of software tools that allows media buyers and sellers real-time control over Web content.

**A SNEAK PREVIEW** When we heard that a San Francisco-based start-up was unveiling what it called the Internet's first Web previewer, we thought, "Great! A tool that can tell us what's on a Web page even before we log on!"

Well, what **NetMetrics** came up with isn't quite that dramatic, but the company does claim that its **WebTurbo** product can work within **Microsoft** and **Netscape** browsers to provide summaries or Web page previews in response to user queries. The previews, which are in an outline format, appear beside Web pages. And unlike query returns from search engines, NetMetrics officials say, WebTurbo's preview pages are "surfable." This lets users quickly see what the Web pages contain without waiting for downloads.

WebTurbo, which is based on what NetMetrics calls "hypersketch technology," was developed with **Sapient Corp.** of Cambridge, Mass. It can be downloaded free at www.webturbo.com.

**WATCH WHERE YOU'RE SURFING** It's getting tougher and tougher for employees to wander where they shouldn't on the Internet these days.

A number of products have entered the market designed to let companies track employee usage of Internet and intranet sites.

The latest offerings, from **Marketwave LLC**, are extensions of the Seattle start-up's software designed to provide Webmasters with information about how visitors interact with their Web sites.

Marketwave's new products, **Hit List Standard Intranet 3.5** and **Hit List Professional 3.5**, are based on the company's **USER-TRACK** technology. **USER-TRACK** enables Webmasters to generate reports based on proxy server log files that show what Web sites workers are visiting and how long they visit.

Hit List Standard Intranet 3.5 costs \$495. The professional version costs \$1,495. Both are available now at www.marketwave.com.

It looks like we should all go back to daydreaming at our desks.

**GAINING PERSPECTIVE ON HIS YEARS WITH BILL** We've heard that working for **Microsoft** can drive you into therapy, but **NetPerceptions** President and CEO **Steven Snyder** took it a step further when he left the Redmond, Wash., campus to pursue a Ph.D. in counseling psychology.

Snyder joined Microsoft in 1983, eventually heading the company's language products division. He departed in 1988 for a doctoral program in psychology at the University of Minnesota and served in a couple of clinical internships before the world of technology again beckoned.

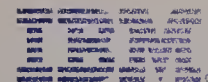
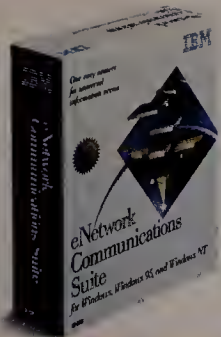
Snyder and several partners formed NetPerceptions in July 1996. The company makes collaborative filtering software for Web sites.

Despite his professional credentials, Snyder says he is happy today to "only psychoanalyze in jest."

*Why don't you all stop surfing the Web long enough to send 'Net Buzz your best Internet and intranet news? Contact Chris Nerney at cnerney@nw.com or (508) 820-7451. Now get back to work!*







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